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FENNAH, R. G. Fulgoroidea of South-Eastern Polynesia 117–220 77 figs.

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the expedition by Zimmerman and his colleagues in 1934 form the bulk of the total collection, and are of considerable interest.

The types of all new species have been deposited in the B. P. Bishop Museum, Honolulu, and a series of duplicates has been deposited in the British Museum (Natural History). The loan of this material is here gratefully acknowledged, and the writer tenders his warmest thanks to the authorities of the Bishop Museum and to Dr. J. L. Gressitt for the privilege of studying this collection.

II. Historical Resumé

Records of Fulgoroidea taken in south-eastern Polynesia are few. In 1854 Stål described the derbid *Lamenia caliginea* from Tahiti, assigning it to the genus *Delphax*. No further species were recorded for 73 years, when Muir, reporting on collections made in 1925 by L. E. Cheesman on the " St. George " expedition, and on captures by Hopkins and Buxton, described two new delphacids, *Ilburnia cheesmani* from the Marquesas and *Delphacodes pacifica* (now *D. muirella* Metc.) from Tahiti, and recorded the presence in the Society Islands of the delphacid species *Tarophagus proserpina*, *Sardia pluto*, *Peregrinus maidis*, and, as *Sogata*, *Chloriona* (*Sogatella*) *eupompe*, and *Coronacella kirkaldyi*; he also described two species from just outside the western margin of south-eastern Polynesia, these being the derbid *Swezeyia maurellei* (Ellice Islands) and the tropiduchid *Vanua buxtoni* (Tonga Islands). In 1949 the present writer described the cixiid *Oliarus vafer* from the Marquesas Islands. Thus, until now, our entire knowledge of the Fulgoroidea of Polynesia east of Samoa and south of Hawaii has been limited to less than a dozen species.

The collection on which the present report is based included 2,115 specimens, among which were represented the families Cixiidae, Delphacidae, Meenoplidae, Derbidae, Dictyopharidae, Issidae and Flatidae. The total number of genera examined is 20 and of species 89. Of these one genus and 73 species are described as new.

III. Geographical Distribution

The distribution of species discussed in this report is given both for island-groups and single islands. A scrutiny of the lists for single islands reveals gaps which further collecting may be expected to fill: it will be surprising, for instance, if *Swezeyia lyricen* proves to be absent from Moorea, Huahine, Tahaa, Bora Bora and Tubai.

Notwithstanding the lacunae, the present samples are sufficiently comprehensive to permit general conclusions to be reached about the origins of the populations from which they were taken.

The single flatid in the collection, found in the Cook Islands, is clearly a recent arrival from eastern Australia and may have been introduced by man. The meenoplid genus *Suva* is known from Samoa, Fiji and eastern Asia. The Derbidae also come from the west : *Pyrrhoneura saccharicida* is known in Fiji, Samoa, Tonga, and Funafuti, and other species of the genus occur in Java and in the Philippines; *Swezeyia lyricen* was described from Fijian material, and the species has been found in Samoa ; other species range from the Phillipine Islands to north-eastern Australia ; *Paralyricen* is well represented in Fiji with six species ; *Lamenia caliginea* is the most widespread derbid in

the Pacific, and some 25 other species of this genus range along the eastern Asiatic seaboard from Japan to Queensland. To all these derbid genera long distances across open sea appear to have provided no insurmountable obstacle, and, if their species are like other members of the family, they all feed in the nymphal stages on fungal hyphae amid rotting vegetation. It is accordingly of exceptional interest that no derbid has been found in the Marquesas Islands.

Atylana, the single generic representative of the Issidae in the present collection, is based on a Fijian species: it is a member of a very compact group, of which other genera are found in Indonesia and Queensland. The penetration of *Atylana* into south-eastern Polynesia is all but complete: it has invaded the Cook group, Society, Austral and Mangareva Islands, Rapa, Pitcairn Island and its distant outlier Henderson Island. No issid, however, has been found in the Marquesas Islands.

Distributional List of SE. Polynesian Fulgoroidea

	Danger Is.	Tokelau Is.	Phoenix Is.	Swain's I.	Society Is.	Austral Is.	Rapa	Henderson I.	Pitcairn I.	Mangareva Is.	Tuamotu Arch.	Marquesas Is.	Cook Is.
CIXIIDAE—													
*Oliarus gemellar**	.	.	.	.	.	×	.	.	.	.	.	.	×
*O. draconarius**	.	.	.	.	.	.	.	.	.	.	.	.	.
*O. euphranor**	.	.	.	.	×	.	.	.	.	.	.	.	.
*O. eurynome**	.	.	.	.	×	.	.	.	.	.	.	.	.
*O. anthedon**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. vindex**	.	.	.	.	.	.	.	.	.	.	.	×	.
O. vafer Fennah	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. helxine**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. atlas**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. iliona**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. plancina**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. coronis**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. amyntor**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. clyte**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. dido**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. telagonus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. symmysta**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. zancha**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. thamyras**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. maia**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. parasanga**	.	.	.	.	.	.	.	.	.	.	.	×	.
*O. sutrinus**	.	.	.	.	.	.	.	.	.	.	.	×	.
DELPHACIDAE—													
*Ugyops oromedon**	.	×	×	×	.	.	.	.	.	.	.	.	.
*U. crotopus**	.	.	.	.	.	.	.	.	.	.	.	.	×
*U. leaena**	×	.	.	.	.	.	.	.	.	.	.	.	.

(* Described below as new)

	Danger Is.	Tokelau Is.	Phoenix Is.	Swain's I.	Society Is.	Austral Is.	Rapa	Henderson I.	Pitcairn I.	Mangareva Is.	Tuamotu Arch.	Marquesas Is.	Cook Is.
DELPHACIDAE—*cont.*													
*U. almo**	.	.	.	.	.	×	.	.	.	.	.	.	.
*U. haliacmon**	.	.	.	.	×	.	.	.	.	.	.	.	.
U. sp.	.	.	.	.	.	.	.	×	.	.	.	.	.
*Nesosydne remmius**	.	.	.	.	×	.	.	.	.	.	.	.	.
*N. scorpinaca**	.	.	.	.	×	.	.	.	.	.	.	.	.
*N. soracte**	.	.	.	.	.	.	×	.	.	.	.	.	.
*N. sophonisba**	.	.	.	.	.	.	×	.	.	.	.	.	.
*N. satyrion**	.	.	.	.	.	.	×	.	.	.	.	.	.
*N. panthus**	.	.	.	.	.	.	×	.	.	.	.	.	.
*N. otus**	.	.	.	.	.	.	×	.	.	.	.	.	.
*N. ozomene**	.	.	.	.	.	.	×	.	.	.	.	.	.
N. cheesmanae Muir	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. cyane**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. clitarchus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. cleanthes**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. agenor**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. orphne**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. melampus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. acastus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. oroanda**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. linus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. dinomache**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. elatus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. sorix**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. siderion**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. helicaon**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. latona**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. lanista**	.	.	.	.	.	.	.	.	.	.	.	×	.
*Aloha lycurgus**	.	.	.	.	.	.	.	.	.	.	.	×	.
*A. majuma**	.	.	.	.	.	.	.	.	.	.	.	×	.
*Nesodryas oenone**	.	.	.	.	.	.	.	.	.	.	.	×	.
*N. laocoon**	.	.	.	.	.	.	.	.	.	.	.	×	.
*Leialoha cajeta**	.	.	.	.	.	.	.	.	.	.	.	×	.
Tarophagus proserpina Kirk.	.	.	.	.	×	.	.	.	.	.	.	.	×
Peregrinus maidis Ashmead	.	.	.	.	×	.	.	×	.	.	.	.	.
Chloriona eupompe Kirk.	.	.	.	×	×	×	×	.	.	.	.	.	.
C. kolophon Kirk.	.	.	.	.	×	.	.	.	×	×	.	×	.
C. paludum Kirk.	.	.	.	.	.	×	.	.	.	×	.	.	×
Coronacella kirkaldyi Muir	.	.	.	.	×	.	.	.	.	.	.	.	.
Sardia pluto Kirk.	.	.	.	.	×	.	.	.	.	.	.	.	.
Delphacodes dryope Kirk.	.	.	.	.	×	×	.	.	.	×	.	.	.
D. lazulis Kirk.	.	.	.	.	.	×	.	.	.	.	.	.	.
D. matanitu Kirk.	.	.	.	.	.	.	.	.	×	.	.	.	.
D. muirella Metcalf	.	.	.	.	×	×	×	.	×	.	×	.	.
*D. ixion**	.	.	.	.	.	.	.	.	.	.	.	.	×
*D. choroebus**	.	.	.	.	.	.	.	.	.	×	.	.	.
MEENOPLIDAE—													
*Suva metagon**	.	.	.	.	×	.	.	.	.	.	.	.	.

(* Described below as new)

	Danger Is.	Tokelau Is.	Phoenix Is.	Swain's I.	Society Is.	Austral Is.	Rapa	Henderson I.	Pitcairn I.	Mangareva Is.	Tuamotu Arch.	Marquesas Is.	Cook Is.
DERBIDAE—													
Swezeyia lyricen Kirk.	.	.	.	.	×	.	.	.	.	.	.	.	×
S. maurellei Muir	.	.	.	×	.	.	.	.	.	.	.	.	.
Pyrrhoneura saccharicida Kirk.	.	×	.	×	.	.	.	.	.	.	.	.	×
*Paralyricen tephrias**	.	.	.	.	×	.	.	.	.	.	.	.	×
Lamenia caliginea Stål	.	×	.	×	×	×	.	.	.	.	×	.	.
DICTYOPHARIDAE—													
*Nesolyncides io**	.	.	.	.	.	.	.	.	.	.	×	.	.
ISSIDAE—													
*Atylana vesontio**	.	.	.	.	.	×	.	.	.	.	.	.	.
*A. volumna**	.	.	.	.	.	×	.	.	.	.	.	.	.
*A. sagmaria**	.	.	.	.	.	×	.	.	.	.	.	.	.
*A. urania**	.	.	.	.	.	×	.	.	.	.	.	.	.
*A. parmenides**	.	.	.	.	.	×	.	.	.	.	.	.	.
*A. tormina**	.	.	.	.	.	.	×	.	.	.	.	.	.
*A. torcular**	.	.	.	.	×	.	.	.	.	.	.	.	.
*A. phorcynis**	.	.	.	.	×	.	.	.	.	.	.	.	.
*A. phoebe**	.	.	.	.	×	.	.	.	.	.	.	.	.
*A. palanto**	.	.	.	.	×	.	.	.	.	.	.	.	.
*A. melissa**	.	.	.	.	×	.	.	.	.	.	.	.	.
*A. astydamia**	.	.	.	.	.	.	.	.	.	×	.	.	.
*A. parmula**	.	.	.	.	.	.	.	×	×	.	.	.	.
A. sp.	.	.	.	.	.	.	.	.	.	.	.	.	×
A. sp.	.	.	.	.	×	.	.	.	.	.	.	.	.
FLATIDAE—													
Colgar rufostigmata Dist.	.	.	.	.	.	.	.	.	.	.	.	.	×

Distributional List of Fulgoroidea of Society Is.

	Tahiti	Moorea	Meetia	Huahine	Raiatea	Tahaa	Bora Bora	Tubai
CIXIIDAE—								
*Oliarus euphranor**	×	.	.	.	.	.	.	.
*O. eurynome**	.	×	.	.	.	.	.	.
DELPHACIDAE—								
*Ugyops haliacmon**	.	×	.	.	.	.	×	.
*Nesosydne remmius**	.	×	.	.	.	.	.	.
*N. scorpinaca**	×	.	.	.	.	.	.	.
Tarophagus proserpina Kirk.	×	.	.	.	×	.	.	.
Delphacodes dryope Kirk.	×	×	.	×	.	.	.	.
D. muirella Metcalf	×	×	.	×	×	.	.	.

(* Described below as new)

	Tahiti	Moorea	Meetia	Huahine	Raiatea	Tahaa	Bora-Bora	Tubai
DELPHACIDAE—*cont.*								
Chloriona eupompe Kirk.	×	×	.	.	×	.	.	.
C. kolophon Kirk.	.	.	.	.	×	.	.	.
Sardia pluto Kirk.	×	.	.	.	×	.	.	.
Peregrinus maidis Ashmead	×	.	.	.	.	.	.	.
Coronacella kirkaldyi Muir	×	.	.	.	.	.	.	.
MEENOPLIDAE—								
*Suva metagon**	.	.	.	×	.	.	.	.
DERBIDAE—								
Swezeyia lyricen Kirk.	×	.	.	.	×	.	.	.
*Paralyricen tephrias**	×	.	×	.	×	.	.	.
Lamenia caliginea Stål	×	×	.	×	×	×	×	.
ISSIDAE—								
*Atylana torcular**	×	.	.	.	.	.	.	.
*A. melissa**	.	×	.	.	.	.	.	.
*A. phorcynis**	.	.	.	×	.	.	.	.
*A. phoebe**	.	.	.	×	.	.	.	.
*A. palanto**	.	.	.	.	.	×	.	.
A. sp.	.	.	.	.	×	.	.	.

Distributional List of the Fulgoroidea of the Austral Is. and Rapa

	Rimatara	Rurutu	Tubuai	Raivavae	Rapa
CIXIIDAE—					
*Oliarus draconarius**	.	×	.	.	.
DELPHACIDAE—					
*Ugyops almo**	×	×	.	×	.
*Nesosydne soracte**	.	.	.	.	×
*N. sophonisba**	.	.	.	.	×
*N. satyrion**	.	.	.	.	×
*N. panthus**	.	.	.	.	×
*N. otus**	.	.	.	.	×
*N. ozomene**	.	.	.	.	×
Chloriona paludum Kirk.	×	.	.	.	.
C. eupompe Kirk.	.	×	.	.	×
Delphacodes dryope Kirk.	.	.	.	×	.
D. lazulis Kirk.	.	.	.	×	.
D. muirella Metcalf	.	×	×	×	×
ISSIDAE—					
*Atylana vesontio**	.	.	×	×	.
*A. volumna**	.	.	.	×	.
*A. sagmaria**	.	.	×	.	.
*A. urania**	.	×	.	.	.
*A. parmenides**	.	×	.	.	.
*A. tormina**	.	.	.	.	×

(* Described below as new)

Distributional List of the Fulgoroidea of the Marquesas Is.

	Fatuhiva	Tahuata	Hiva Oa.	Fatuuku	Uapou	Uahuka	Nukuhiva	Hatutu
CIXIIDAE—								
*Oliarus anthedon**	.	.	×	.	.	.	.	.
*O. vindex**	.	.	×	.	.	.	.	.
O. vafer Fennah	.	.	×	.	.	.	.	.
*O. helxine**	.	×	×	.	.	.	.	.
*O. atlas**	×	×	×	.	.	.	.	.
*O. iliona**	.	.	×	.	.	.	.	.
*O. plancina**	.	.	×	.	.	.	.	.
*O. coronis**	.	.	×	.	.	.	.	.
*O. amyntor**	.	.	×	.	.	.	.	.
*O. clyte**	.	.	×	.	.	.	.	.
*O. dido**	.	×	.	.	.	.	.	.
*O. telagonus**	.	×	.	.	.	.	.	.
*O. symmysta**	.	.	.	.	×	.	.	.
*O. zancha**	.	.	.	.	×	.	.	.
*O. thamyras**	.	.	.	.	×	.	.	.
*O. maia**	.	.	.	.	×	.	.	.
*O. parasanga**	.	.	.	.	.	.	×	.
*O. sutrinus**	.	.	.	.	.	.	×	.
DELPHACIDAE—								
Nesosydne cheesmanal Muir	.	.	×	.	.	.	.	.
*N. cyane**	.	.	×	.	.	.	.	.
*N. clitarchus**	.	.	×	.	.	.	.	.
*N. cleanthes**	.	.	×	.	.	.	.	.
*N. agenor**	.	.	×	.	.	.	.	.
*N. orphne**	.	×	.	.	.	.	.	.
*N. melampus**	.	.	×	.	.	.	×	.
*N. acastus**	.	.	×	.	.	.	.	.
*N. oroanda**	.	.	.	.	.	.	.	×
*N. linus**	.	.	.	.	×	×	.	.
*N. dinomache**	.	.	.	.	×	.	.	.
*N. elatus**	.	.	.	.	×	.	.	.
*N. sorix**	.	×	.	.	.	.	.	.
*N. siderion**	×	.	.	.	.	.	.	.
*N. helicaon**	×	.	.	.	.	.	.	.
*N. latona**	×	.	.	.	.	.	.	.
*N. lanista**	.	.	.	.	.	×	.	.
*Aloha lycurgus**	.	.	×	.	.	.	.	.
*A. majuma**	.	.	×	.	.	.	.	.
*Nesodryas oenone**	.	.	×	.	.	.	.	.
*N. laocoon**	.	.	×	.	.	.	.	.
*Leialoha cajeta**	.	.	×	.	.	.	.	.
Chloriona kolophon Kirk.	.	.	×	.	.	.	.	.

The only cixiid genus found in south-eastern Polynesia, *Oliarus*, is of world-wide distribution, and has reached even the Hawaiian Islands. As defined at present, it includes an easily recognised group of insects, but one which is by no means homogeneous, and which falls into species-groups which are more or less distinct from one another. Species in the present collection show a distinct

(* Described below as new)

cleavage between those from the Marquesas Islands and the remainder from the Cook Islands, Austral Islands and Society Islands. The latter populations belong to a single group. The most interesting contrast between the two groups is to be found in their evolutionary behaviour: in the Marquesas Islands, but apparently not in the others, prolific speciation on the Hawaiian pattern has occurred: it has, moreover, occurred to much the same degree in all of the major islands of this group. In no other islands of the Pacific, except the Hawaiian group, and in no other part of the world, is a comparable intensity of speciation to be found in this genus.

The subfamily Asiracinae of the Delphacidae is represented only by the genus *Ugyops*, and moreover by a group within this genus which is closely related to species occurring in Samoa. The distribution of captures given in the table shows wide gaps, but representation west of the Society Islands is high and a species has been taken as far east as Pitcairn. It is undoubtedly from the western Pacific that the south-eastern Polynesian species have been derived.

In the subfamily Delphacinae the typical tribe is weakly represented by ten species widespread in the western Pacific, whence they have undoubtedly come, and by three species, two of which are restricted to a single island group (Cook Islands, Mangareva Islands), and a third, *Delphacodes muirella*, which occurs in the Society Islands, Austral Islands, Rapa, the Tuamotu group, and Pitcairn, but has not been taken in the Marquesas Islands or in Mangareva.

The tribe Alohini is represented in Rapa, the Society Islands and the Marquesas Islands by an assemblage of species which belong to four genera which elsewhere occur only in the Hawaiian Islands. No member of this tribe has been found in the western Pacific, including Micronesia, whereas several species of *Nesosydne*, one of the genera involved, occur in the Juan Fernandez group. In no island does the evidence suggest that the species present are of recent introduction, and the exuberant speciation in Rapa, the Marquesas Islands and Juan Fernandez indicates an evolutionary pattern comparable to that followed by the Alohini in Hawaii and by the cixiid genus *Oliarus* in Hawaii and in the Marquesas Islands. In view of the unequal amount of collecting which has been done in the islands, it is premature to assume that this section of the fauna is richer in the Marquesas than in the Society Islands, or that the Alohini are not represented in the Austral Islands, but there is good reason to believe that the Society Islands lie at the westermost limit of the area in which the tribe is found. Outside the Pacific, a species belonging to a genus (*Ilburnia*) close to *Nesosydne*, if not actually congeneric, is found in St. Helena, and the monobasic *Proterosydne*, possibly not far removed from *Nesosydne*, is found in Queensland. The few South American and African Alohini are bizarre and unlike the Pacific species: *Burnilia*, distributed along the major folding axis of the northern half of South America, is perhaps nearest, but substantially removed. The Hawaiian fauna has elements (*Dictyophorodelphax*, *Nesothoë*) not represented in south-east Polynesia, and the latter has forms unparalleled in Hawaii. No species is common to any two island-groups.

On the data available it can be concluded that the Alohini of Hawaii have been derived from the same source as those of south-eastern Polynesia. The Alohini of both areas are about equally diversified, and the evidence gives no support to the view that one fauna represents the parent population from which

the others were derived, or that one population is older than another. In other parts of the world the Alohini and *Oliarus* do not show any greater tendency to exuberant speciation than other Fulgoroidea in the same area, so that the greater extent of this process found in *Nesosydne* as compared with the issid *Scalabis* must be attributed to longer residence on the part of the former genus. South-east Polynesia, Hawaii and apparently Juan Fernandez, shared a fauna of alohine Delphacidae, and, in the first two at least, of the cixiid *Oliarus*, long before the arrival of Derbidae and Issidae from the west.

A general survey of the Fulgoroidea of the Pacific suggests that the Dictyopharidae have played no part in colonising the area. The only dictyopharid so far recorded, *Chanithus gramineus* F. (in western Micronesia), is clearly a recent introduction from eastern Asia, where it is widespread. In view of this fact the occurrence of a single dictyopharid species in Mangareva, an island supremely remote from continental areas, might appear automatically to require the assumption that it is a recent introduction by man. A major difficulty in the way of such an assumption, however, is the fact that the population in question belongs not only to a new genus and species but also to a tribe which contains only three rare genera, two from East Africa and one from Mayotte and Madagascar. Yet if this species is a member of an original fauna it is surprising that it is not more widely represented in south-eastern Polynesia.

The general conclusion can be drawn that the Fulgoroidea of south-eastern Polynesia comprise three elements, differing in length of residence and in origin. These are (1) recent incursives, possibly introduced by man, (2) a restricted fauna derived from the Philippines-Queensland arc of islands and representing a very attenuated Fijian fauna, (3) an older fauna, restricted to the central and eastern Pacific.

The probable home of the parent population from which this older fauna was derived cannot be located by examination of specimens from other areas, and must be presumed either to have vanished by erosion or to have changed its faunistic and floristic constitution so profoundly that the ancestral population has become extinct without leaving a trace.

If it were merely a question of establishing a centre of dispersal in mid-Pacific which could support a fairly rich population and from which different species could become dispersed to Juan Fernandez, the Society Islands, Rapa, the Marquesas Islands and Hawaii, no area could more plausibly be invoked than the earlier framework of the Tuamotu archipelago. Although to-day comprising less than 100 square miles of dry land, this archipelago, 1000 miles long, would be almost comparable with the Solomon Islands if a conical island were fitted exactly inside each of its atolls; and such at one time must have been its shape.

If the early Tuamotus are accepted as such a " high-island " chain it might be expected, on analogy with the Solomon Islands as they are to-day, that endemic genera of insects would develop. But it is hardly to be supposed that endemic tribes and endemic families would arise: it is more reasonable to assume that divisions of this magnitude could be evolved only in an area of continental size and over a long period of time. In stocking a hypothetical Tuamotuan base with suitable ancestors of the present " Old " mid-Pacific fauna it is necessary to include an *Oliarus*, an *Iolania* (a Hawaiian genus) and unspecialised alohine Delphacidae with " short " and " long " first antennal

segments. The first might be obtained from many sources; the second (if it is not derived from *Oliarus*), has no close living relatives except a form in Queensland; there are no known Alohini with a short unspecialised first antennal segment outside the central Pacific, while the only close form with a long first antennal segment is *Ilburnia*, found only in St. Helena. The question whether *Ilburnia* and *Nesosydne* are congeneric is purely a matter of generic definition within narrow limits: there is no ground for doubting that they are from a common stock.

As can be verified from the collection data given below, the Pacific Alohini, like other Fulgoroidea, tend to feed on plants in a given association, and though they may frequently feed on a particular species they are normally by no means obligately dependent on it for their nutriment. It is rare, on the other hand, to find them away from their host plant association. This point is stressed because the inference may be drawn that since *Nesosydne* in the south-eastern Pacific has been frequently taken on such hosts as *Metrosideros* it must be considered as having come into the Pacific from the same source. While there can obviously be no question that the existence of a food-plant is prerequisite to the successful establishment of an immigrant species of Fulgoroidea, it cannot be legitimately assumed that the host plants on which they are taken to-day are those on which they fed upon their arrival: on the other hand it can be assumed with confidence that they are today in their original plant association or in the particular plant association which has invaded and replaced it.

Ilburnia ignobilis White in St. Helena has been taken on *Dicksonia*, a genus of ferns confined to the southern hemisphere and with antarctic affinities. The floras of Hawaii, the Marquesas and Juan Fernandez also contain species with Antarctic affinities, while "rain-forest" ferns and endemic species form the association in which Pacific *Oliarus* and the alohine Delphacidae live. As existing populated continents provide no clue to the origin of the "old" element in the Pacific Fulgoroidea or of the South-Atlantic Fulgoroidea the above facts are thought to be of profound significance, and to indicate Tertiary Antarctica as the most probable region from which this element was derived, and in which its immediate ancestors evolved.

It is evident that such a suggestion can be regarded as a serious hypothesis only when its implications have been shown to be consistent with all the available data. As faunistic groups other than Fulgoroidea are involved in this question, it is preferable that it be considered in a separate discussion.

IV. Key to Families of Fulgoroidea Occurring in Polynesia East of Samoa

1		Second post-tarsal segment not very small in relation to first, armed with a row of spines at apex, apex truncate or emarginate	2
–		Second post-tarsal segment small in relation to first, with a single spine at each side, apical margin usually rounded or subconical	6
2	(1)	Anterior or posterior claval vein bordered with conspicuous secretory pores or tubercles	3
–		Neither claval vein tuberculate; if granules present, then along all veins of corium	4

3 (2) Labium with apical segment much longer than wide, rounded or conical at apex, median ocellus generally present on frons; the sixth, seventh and eighth abdominal tergites bearing tracts of wax-secreting pores. Ninth tergite of male not fused with anal segment. Seventh sternite of female abdomen not produced caudad . . . . . MEENOPLIDAE

– Labium with apical segment about as broad as long, abruptly truncate and flattened at apex, no median ocellus on frons; abdominal tergites without wax-plates, ninth tergite of male fused with anal segment and not with pygofer. Pregenital sternite of female usually produced . . . . . DERBIDAE

4 (2) Post-tibiae with a long mobile spur at apex. In most genera an obliquely transverse carina on genae below antennae. Aedeagus tubular, sometimes withdrawn into a crypt; if long, often recurved and membranous distally; ovipositor long, curved, ensiform . . . . . DELPHACIDAE

– Post-tibiae without a mobile spur 5

5 (4) Vertex often markedly produced before eyes; if not, disc of frons with submedian longitudinal carinae; or tegulae absent and claval suture of tegmina obsolete. Median ocellus absent from frons. Aedeagus in form of a membranous sac. Ovipositor never ensiform, ninth segment without wax-secreting pores DICTYOPHARIDAE

– Vertex rarely much produced before eyes, disc of frons without submedian longitudinal carinae, carinate at lateral margins and usually medially. Median ocellus often present. Tegulae present. Tegmina with claval suture distinct. Aedeagus tubular and sclerotised basally, often membranous and recurved distally. Ovipositor with valvulae long, curved, ensiform, or, if short, narrow and porrect beneath a vertical ovate tract of wax-secreting pores on hind surface of ninth segment . . . CIXIIDAE

6 (1) Tegmina with pustules (secretory pores) in basal half of clavus and often between *R* and *M* basally; costal vein submarginal, costal area traversed by numerous veinlets . . . . FLATIDAE

– Tegmina not as above, devoid of pustules, coriaceous . . . ISSIDAE

V. Family CIXIIDAE Spinola

Genus *Oliarus* Stål

Oliarus Stål, 1862, *Berl. ent. Z.* **6**: 306; Logotype, *Cixius walkeri* Stål, 1859, *Fregatten Eugenies Resa, Zool.* **4**: 272.

A study of the female material of this genus suggests that more species await discovery in SE. Polynesia. The greatest degree of differentiation is to be found in the Marquesas Islands, and this has involved both speciation and geographical subspeciation. Moreover, in several species the superficial appearance of the male is strikingly different from that of the female. In such circumstances the positive identification of isolated specimens may not be easy, but it is hoped that the following key will prove adequate.

A word of explanation is needed on two morphological terms mentioned in some of the descriptions which follow. The first is " pre-ocellar fenestra ". The fenestrae of *Oliarus* are lenticular window-like (imperforate) attenuations of the disc of the frons, and a pair is frequently to be found immediately in front

of the antennae. In some species of Polynesian *Oliarus* a second pair of fenestrae may occur on the frontal disc, immediately in front of the lateral ocelli. These structures do not appear to have been described : they differ from what must now be termed the " pre-antennal " fenestrae in their rounder outline and much smaller size. The second term is " scale-like teeth " used in the key. This refers to the structure on the distal margin of the second segment of the post-tarsus. This usually has a short spine at each latero-apical angle, and a row of minute pigmented projections along the margin between them. Each of these projections represents the distal termination of a minute ridge, and the projection may be acute or almost truncate. From each such projection a narrowly triangular membranous process extends beyond the margin. It is pallid, easily detached, and frequently clotted with foreign matter : this is the " scale ", and together with the pigmented projection from the margin forms the " scale-like tooth ". It is not normally necessary to use the form of such teeth as a taxonomic character, or to draw a distinction between " teeth " and " spines " where small processes are concerned. In the present report, however, it so happens that a very clear-cut separation of two species from the bulk of Marquesas *Oliarus* can be achieved by contrasting this character with the presence of stout and well-formed spines.

Key to the Species of Oliarus *Stål in the Marquesas Islands*

1		Species relatively small : length from head to apex of folded tegmina not more than 5·6 mm. ; tegmen not longer than 4·5 mm.	2
–		Species longer than above	7
2	(1)	Tegmina pale yellowish with pallid concolorous veins	3
–		Tegmina hyaline with fuscous veins	4
3	(2)	Antennae pallid, ivory-stramineous ; lateral margins of vertex prominent, median carina feeble	**O. thamyras***
–		Antennae light fuscous ; median carina of vertex strongly present, as high as lateral margins	**O. maia***
4	(2)	Vertex not more than 1·4 times as long in middle line as broad at middle of hind margin	5
–		Vertex more than 1·4 times as long as broad	6
5	(4)	Disc of frons markedly hollowed between median carina and lateral margins ; median carina of frons narrowly and acutely forked basally	**O. telagonus***
–		Disc of frons not markedly hollowed longitudinally on each side ; median carina of frons rectangulately forked basally	**O. anthedon***
6	(4)	Vertex more than 1·7 times as long in middle as broad at middle of hind margin ; disc of frons very distinctly angulately transversely convex at level of median ocellus . . .	**O. parasanga***
–		Vertex not as much as 1·7 times as long as broad ; disc of frons rather weakly transversely convex at level of median ocellus	**O. vindex***
7	(1)	Tegmina with corium yellowish-hyaline, venation of corium yellowish, venation of membrane fuscous or mostly fuscous .	13
–		Tegmina not suffused with yellow, venation of corium fuscous, or corium with fuscous markings	8

(* Described below as new)

8	(7)	Frons, vertex and sides of head ochraceous to ivory-stramineous; tegmina marked with fuscous 9
–		Frons, vertex and sides of head fuscous 10
9	(8)	Frons broader than long in middle line . . . . . **O. zancha***
–		Frons longer in middle line than broad . . . . . **O. symmysta***
10	(8)	Latero-apical areolets of vertex confluent; frons as long in middle line as broad . . . . . **O. sutrinus***
—		Latero-apical areolets of vertex distinctly separated by paired carinae or a median ridge 11
11	(10)	Anterior marginal carina of vertex angulate, parallel with posterior margin of latero-apical areolets; tegmina with fuscous markings on corium . . . . . **O. iliona***
—		Anterior marginal carina of vertex transverse, not at all parallel with posterior margin of latero-apical areolets; tegmina not marked with fuscous on corium 12
12	(11)	Clypeus in profile rather abruptly and strongly convex in basal third; vertex longer in middle line than broad at middle of hind margin (1·46 : 1) . . . . . **O. vafer** Fennah
—		Clypeus in profile shallowly and smoothly curved in basal half; vertex only about 1·1 times longer in middle line than broad **O. helxine***
13	(7)	Second post-tarsal segment with a row of spines distally . . . 14
—		Second post-tarsal segment with 2 spines and a row of scale-like teeth distally 15
14	(13)	Frons fully 1·3 times as broad at widest part as long in middle. Tegminal membrane not infuscate . . . . . **O. coronis***
—		Frons not so relatively broad. Tegminal membrane infuscate **O. atlas***
15	(13)	Tegmina with membrane infuscate . . . . . **O. plancina***
—		Tegmina with membrane not infuscate 16
16	(15)	Clypeus in profile strongly convex in its basal third, slightly concave at middle 17
—		Clypeus in profile smoothly convex in its basal half, not at all concave at middle . . . . . **O. dido***
17	(16)	Ground colour of thorax fuscous; lateral processes of apical lobes of genital styles each more than twice as long as broad, blade-like . . . . . **O. clyte***
—		Ground colour of thorax stramineous; lateral processes of apical lobes of genital styles each much less than twice as long as broad, curved, acutely triangular . . . . . **O. amyntor***

Oliarus gemellar sp. n. (Fig. 1, A–G)

Vertex quadrate, longer in middle line than broad at apex of posterior emargination (1·6 : 1), lateral margins almost parallel, very feebly converging distad, strongly elevated in posterior half; frons broader than long in middle line (1·25 : 1), almost straight in profile, fenestrae indicated, obscure, median carina forked one-third from base, median ocellus not prominent but fairly distinct; clypeus in profile shallowly sinuately convex. Post tibiae with 3 spines laterally, 6 apically; basal metatarsal segment with 7 teeth, second metatarsal with 5.

Fuscous; disc of frons, except near median ocellus, and basal half of clypeus, testaceous-fuscous; carinae of head, pronotum entirely, tegulae and legs testaceous, the last with dilute fuscous suffusion; carinae of mesonotum dark testaceous. Tegmina greyish-

(* Described below as new)

hyaline, stigma and veins stramineous, the latter darkening to testaceous near apex. Wings hyaline, powdered white, with reddish-brown veins.

Male genitalia as figured. Anal segment broadly ovate, apical margin subtruncate. Pygofer bilaterally symmetrical, each lateral margin produced caudad in its lower half in

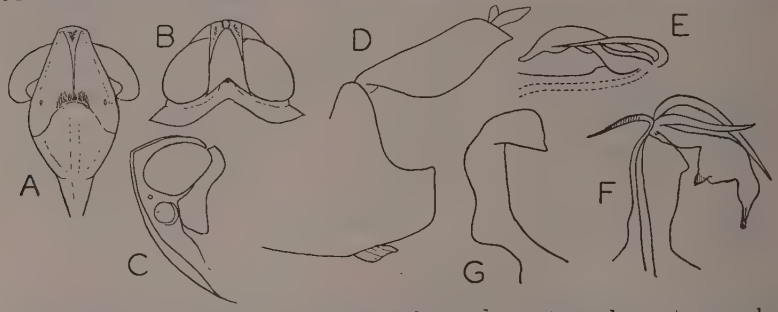

Fig. 1.—*Oliarus gemellar* sp. n.: A, frons and clypeus; B, vertex and pronotum; C, head in profile; D, anal segment and pygofer, left side; E, aedeagus, left side; F, aedeagus, dorsal view; G, genital style, posterolateral view.

a subrectangulate lobe; medioventral process triangular, almost as broad across base as long in middle line, with 4 horizontal grooves laterally. Aedeagus in dorsal view about 3 times as long as broad at middle, a curved spinose process arising on right near apex, curved ventrad, caudad then dorsad and finally to right; 2 long unequal spinose processes arising at apex, directed to left, the longer directed laterocephalad in its distal half; flagellum moderately long, broad, with its distal margin produced in 2 sclerotised and pigmented processes, one subspinose, the other peg-like.

Male: length, 4·9 mm.; tegmen, 5·4 mm.

Cook Is.: Raratonga. Holotype and 5 males, 20.xi.1937.

This species is distinguished by the proportions of the head, by coloration and by details of genitalic structure.

Oliarus draconarius sp. n. (Fig. 2, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (1·5 : 1), lateral margins parallel throughout, rather weakly elevated in posterior half, median

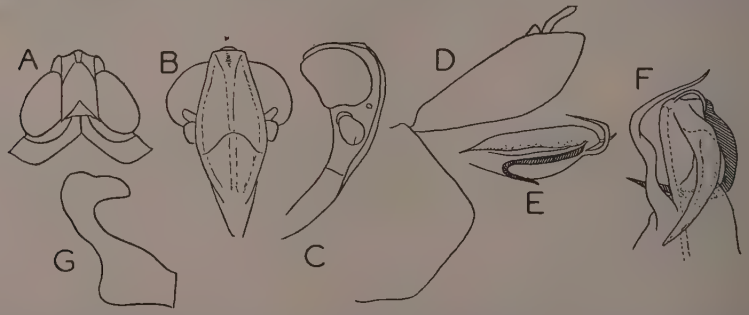

Fig. 2.—*Oliarus draconarius* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, anal segment and pygofer, left side; E, aedeagus, left side; F, aedeagus, dorsal view; G, genital style, posterolateral view.

carina distinct in basal half of disc, absent from distal half; frons longer in middle line than broad at widest part (1·3 : 1), feebly convex in profile, disc feebly transversely convex, fenestrae feebly indicated, median carina prominent, forked rather narrowly about one-fifth from base, median ocellus obscure, lateral margins slightly inflected anteriorly; clypeus in profile moderately convex in basal half, forming a smooth shallow curve with frons, distal portion more feebly convex. Post-tibiae with 3 spines laterally, 6 apically, basal metatarsal segment with 7 teeth, second segment with 6.

Castaneous-piceous; margins and carinae of head, pronotum and mesonotum, and tegulae entirely, pale stramineous; rostrum, except at apex, legs and genital styles testaceous, mesonotal disc mostly ferruginous, castaneous towards margins. Tegmina hyaline, faintly tinged yellow on clavus, veins and stigma hyaline and concolorous, in female venation stramineous with slightly darker granules, apical margin faintly fuscous in both sexes. Wings hyaline, powdered white, veins stramineous, becoming brown distally.

Male genitalia as figured. Anal segment in dorsal view ovate, widest distad of middle, tectiform. Pygofer with medioventral process in ventral view triangular, not more than twice as long as broad at base. Aedeagus with a narrow, strongly sinuate, lobe arising on right basally, directed caudad and curved mesad distally; 2 very unequal processes arising on left apically, one moderately short and very slender, directed dorsad and curving cephalad, the other much longer, stout, curved mesad through 180 degrees, finally directed laterocaudad; flagellum rather long, directed cephalad and reaching almost to base of aedeagus, acute at apex but not produced in a spine.

Male: length, 3·5 mm.; tegmen, 4·0 mm. *Female:* length, 4·1 mm.; tegmen, 4·7 mm.

Austral Is.: Rurutu. Holotype and 1 male and 1 female, Mt. Manureva, 1000 feet on south-west slope, 25.viii.1934 (*D. Anderson*).

This species is distinguished by the shape of the head, bodily size, coloration and structure of the male genitalia. The most obvious distinctive features include the colourless hyaline stigma, the pallid tegminal venation, and the relatively narrow frons.

Oliarus euphranor sp. n. (Fig. 3, A–F)

Vertex quadrate, longer in middle line than broad at apex of posterior emargination (1·2 : 1), lateral margins parallel, moderately elevated in posterior half; frons broader than long in middle line (1·5 : 1), straight in profile, fenestrae absent, median carina forked near middle of its length, median ocellus obscure; clypeus in profile rather strongly curved

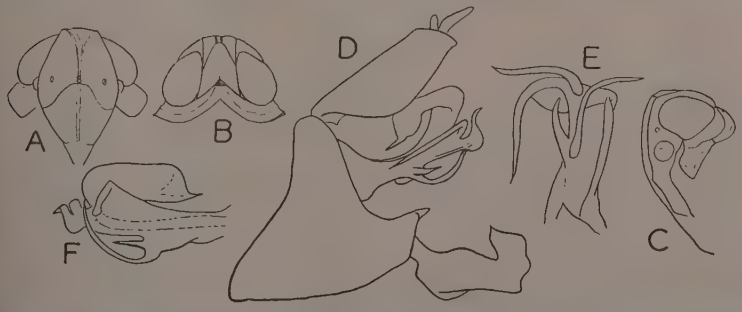

Fig. 3.—*Oliarus euphranor* sp. n.: A, frons and clypeus; B, vertex and pronotum; C, head in profile; D, male genitalia, left side; E, aedeagus, ventral view; F, aedeagus, right side.

at base. Post-tibiae with 2 or 3 spines laterally, 6 apically, basal metatarsal segment with 7 teeth, second metatarsal with 5 teeth.

Dark castaneous or castaneous-piceous ; carinae of clypeus, frons, vertex and mesonotum ferruginous, lateral margins of frons at its widest part, carinae of pronotum, tegulae, basal segment of rostrum, legs and male genital styles testaceous, or testaceous with dilute fuscous suffusion. Tegmina greyish hyaline, a dilute suffusion on basal third of clavus reddish-brown, stigma and veins reddish-brown, Cu_1 in corium testaceous, Cu_2 (suture) stramineous. Wings hyaline, powdered white, veins fuscous.

Male genitalia as figured. Anal segment in dorsal view broadly ovate. Pygofer bilaterally symmetrical, each lateral margin strongly produced caudad in a subrectangulate lobe with its dorsal apical angle acute. Aedeagus with a ventral keel produced caudad in 2 spinose processes, one short, the other long and curved distally to right, the keel tapering distally into an ensiform process directed caudad ; 2 processes arising on left at apex of aedeagus, the longer directed cephalad, the shorter laterad to left ; flagellum short and broad, produced at apex in a rather short slender spine.

Male : length, 3·8 mm. ; tegmen, 4·7 mm. *Female :* length 4·1 mm. ; tegmen, 5·6 mm.

Society Is. : Tahiti I. Holotype and 13 males, 12 females and 1 mutilated specimen, Mt. Aorai Trail, 4500–5500 feet, 14.ix.1934, on *Weinmannia* (*E. C. Zimmerman*).

This species is distinguished by the proportions of the head, by coloration and by the shape of the male genitalia. The frons in some specimens may be testaceous near the margins, shading mesad into castaneous, and only becoming castaneous-piceous near the suture in the region of the ocellus.

Oliarus eurynome sp. n. (Fig. 4, A–H)

Vertex quadrate, longer in middle line than broad at apex of posterior emargination (1·1 : 1), lateral margins weakly converging distad, moderately elevated in posterior half ; frons broader than long in middle line (1·4 : 1), almost straight in profile, fenestrae indicated,

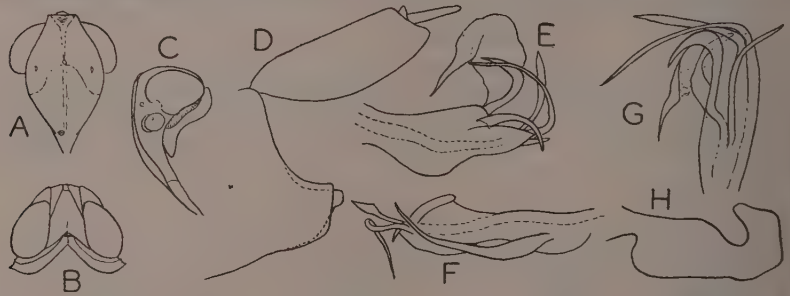

Fig. 4.—*Oliarus eurynome* sp. n. : A, frons and clypeus ; B, vertex and pronotum ; C, head in profile ; D, anal segment and pygofer, left side ; E, aedeagus, left side ; F, aedeagus, right side ; G, aedeagus, ventral view ; H, genital style, posterolateral view.

fairly distinct, median carina forked near middle, median ocellus small, not prominent ; clypeus in profile moderately curved in basal half. Post-tibiae with a single spine laterally (sometimes a vestigial second spine is present), apical margin with 6 spines, 1 larger than the others ; basal metatarsal segment with 7 teeth, second segment with 5.

Castaneous-fuscous ; carinae of clypeus, frons and vertex and intermediate carinae of mesonotal disc dark yellow, lateral margins of frons, edges of pronotum, tegulae and

genital styles, testaceous; median and lateral carinae of mesonotal disc ferruginous; legs fuscous, fading to testaceous near margins. Tegmina greyish-hyaline, costal margin and stigma ochraceous, veins, including costa just within margin, brown, with exception of Cu_1 and claval suture (Cu_2) both of which are almost stramineous. Wings hyaline, powdered white, with fuscous veins.

Male genitalia as figured. Anal segment large, broadly ovate. Pygofer with lateral margins a little asymmetrical, each produced caudad in lower half in a quadrate lobe, that on the right side less rectangulate and more acute than that on left. Aedeagus with 2 long spinose processes and one of moderate length arising on or near right side apically, directed to left; 2 spinose processes arising below aedeagus, directed to right, median ventral lobe of aedeagus directed caudad in a vertical pointed lobe, like a broad blade; flagellum membranous, and tapering distally into a rather long, sclerotised spinose process.

Male: length, 4·1 mm.; tegmen, 5·0 mm.

Society Is.: Moorea. Holotype and 1 male, Mt. Teaharua, north ridge, 1500–2000 feet, 25.ix.1934 (*E. C. Zimmerman*).

This species is apparently the Moorean representative of *O. euphranor* from Tahiti, but the differences are many: the clypeus is less curved at the base, when viewed in profile, the vertex is relatively longer and the margins converge distad. The male genitalia of the two species are abundantly different in detail.

Oliarus anthedon sp. n. (Fig. 5, A–F)

Vertex longer in middle line than broad at apex of posterior emargination (1·3 : 1), lateral margins shallowly concave, slightly elevated in posterior two-thirds, median carina distinct, obsolete near apex of disc; frons broader than long in middle line (1·4 : 1) feebly

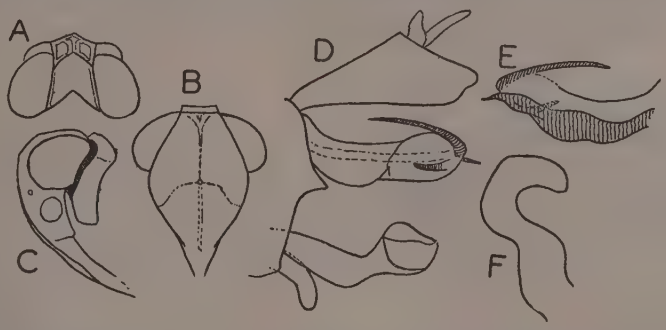

Fig. 5.—*Oliarus anthedon* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, male genitalia; E, aedeagus, left side; F, genital style, posterolateral view.

convex in profile, strongly convex transversely; fenestrae absent, median carina distinct, median ocellus present but obscure; lateral margins only slightly inflected anteriorly; clypeus in profile almost straight, feebly sinuate, forming with frons an angle of about 140 degrees. Post-tibiae with 3 spines laterally, 6 apically; basal metatarsal segment with 7 spines, second segment with 2 spines and 6 minute teeth between them.

Fuscous; carinae and margins of head and thorax ochraceous, frons sometimes lighter fuscous shading to testaceous-ochraceous laterally. Tegmina hyaline, powdered greyish-white, stigma fuscous, veins yellowish-brown, subapical line of transverse veins narrowly fuscous. Wings hyaline, powdered lightly sordid white, veins fuscous.

Male genitalia as figured. Anal segment in dorsal view broadly ovate. Pygofer with lateral margins subrectangulately produced caudad at middle. Aedeagus with a pigmented sclerotised lobe on right side, produced mesocaudad distally in a narrow spinose process; 2 unequal spinose processes arising on left at apex, the upper long, stout, extending cephalad almost to base of aedeagus, slightly curved mesad near apex, the lower short, stout, bluntly spinose, closely adpressed to side of aedeagus; flagellum short, entirely membranous, unarmed at apex.

Male: length, 3·8 mm.; tegmen, 4·2 mm. *Female:* length, 3·9 mm.; tegmen, 4·5 mm.

Marquesas Is.: Hiva Oa. Holotype and 8 males and 5 females, Feani ridge, 3800 feet, 22.i.1932, beating *Weinmannia* (*Le Bronnec*); Matauuna, 3760 feet, 1.viii.1929, 4.iii.1930, shrub No. 497, *Rapanea* sp. (*Mumford and Adamson*); Temetiu ridge, 3900 feet, 14.i.1932, on *Cheirodendron* (*Le Bronnec*); Mt. Temetiu, 3620 feet, 24.vii.1929 (*Mumford and Adamson*). Holotype from Feani ridge.

Apart from characters of the male genitalia, in which the brevity of the shorter apical spine on the left side of the aedeagus is distinctive, this species is most readily recognised by the shape of the head. The frons is strongly convex transversely, and strongly angulately convex in conjunction with the clypeus, in profile. The median carina and the weakly flaring margins are in abrupt colour-contrast to the discal area.

Oliarus vindex sp. n. (Fig. 6, A–F)

Vertex longer in middle line than broad at apex of posterior emargination (1·2 : 1), lateral margins shallowly concave, moderately elevated in posterior half, median carina obsolete, only faintly indicated even at base; frons broader than long in middle line (1·5 : 1), straight in profile, disc transversely convex, fenestrae absent, median carina

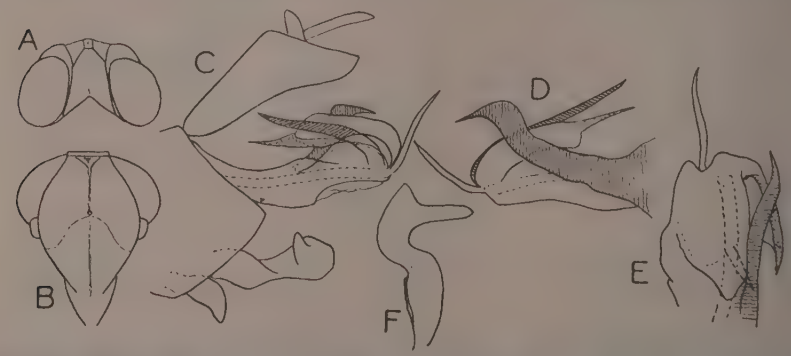

Fig. 6.—*Oliarus vindex* sp. n.: A, vertex; B, frons and clypeus; C, male genitalia, left side; D, aedeagus, right side; E, aedeagus, ventral view, F, genital style, postero-lateral view.

widely forked near base, median ocellus small but distinct, lateral margins slightly flaring; clypeus in profile strongly convex in basal half, straight in distal half. Post-tibiae with 2 or 3 spines laterally, 6 apically; basal metatarsal segment with 7 spines distally, second segment with 2 spines and 5 small teeth between them.

Fuscous-piceous ; all carinae and margins of head, pronotum, tegulae, and legs narrowly pallid ochraceous ; carinae of mesonotum ferruginous. Tegmina hyaline, powdered greyish-white or with a diffuse yellowish tinge on corium, stigma and apical margin dark fuscous, veins of corium stramineous or subhyaline, with reddish-brown granules ; distal venation castaneous, transverse veins of subapical line reddish-brown and rather broadly overlain with reddish-brown suffusion. Wings hyaline, powdered clear greyish-white, veins fuscous.

Male genitalia as figured. Anal segment ovate in dorsal view, broadest distally. Aedeagus with a moderately broad, subparallel-sided process arising on right at base directed dorsocaudad, abruptly narrowed at apex and produced ventrocaudad in a spinose process ; 2 stout unequal spines arising at apex of aedeagus, directed cephalad in repose, the lower distinctly longer than the upper ; flagellum short, distally sclerotised and slightly pigmented, produced cephalad in a stout spinose process.

Male : length, 3·6 mm. ; tegmen, 5·0 mm.

Marquesas Is. : Nukuhiva. Holotype and 7 males, Pukoke, Tunoa ridge, 3485 feet, 22.x.1929, shrub F. No. 565 (*Mumford and Adamson*) ; Ooumu, 3400–4050 feet, 12.xi.1929, 20.vii.1931, on *Weinmannia parviflora* and *Cyrtandra* (*Le Bronnec and Tauraa*).

Holotype from Pukoke.

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. The most distinctive superficial feature is perhaps the even narrow pallid margin to every piceous surface.

Oliarus vafer Fennah. (Fig. 7, A–G)

Fennah, 1949, *Ann. Mag. nat. Hist.* (12) **2** : 585.

Vertex longer in middle line than broad at apex of posterior emargination (1·3 : 1), lateral margins shallowly concave, strongly elevated in posterior half, median carina obsolete on disc, prominent basally ; frons broader than long in middle line (nearly 1·3 : 1),

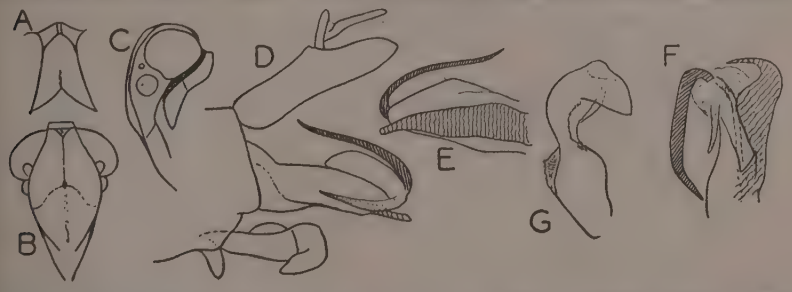

Fig. 7.—*Oliarus vafer* Fenn. : A, vertex ; B, frons and clypeus ; C, head in profile ; D, male genitalia, side view ; E, aedeagus, left side ; F, aedeagus, ventral view ; G, genital style, posterolateral view.

almost straight in profile, or only very weakly convex, fenestrae present, median carina forked one-fifth from base, median ocellus small, distinct but not prominent ; clypeus in profile convex in basal half, almost straight distally. Post-tibiae with 3 spines laterally, 6 apically, basal metatarsal segment with 7 spines apically, second segment with 2 spines and 6 small teeth between them.

Castaneous-fuscous ; carinae and margins of head, pronotum, mesonotum and tegulae narrowly stramineous. Tegmina greyish-hyaline, venation and stigma castaneous-fuscous. Wings sordid white or very dilute fuscous with fuscous veins.

Male genitalia as figured. Anal segment in dorsal view ovate with apical margin short and weakly concave. Pygofer bilaterally symmetrical with posterior lateral margins inflected mesad, in side view produced caudad at middle in a small convex lobe. Aedeagus in dorsal view about twice as long as broad, produced at apex on right side in a moderately long flattened spinose process curved mesad; a pair of unequal processes arising on left, the longer arising at apex, directed cephalad and slightly incurved distally, the shorter arising ventrally and subapically directed cephalad, bluntly pointed at apex.

Male: length, 3·9 mm.; tegmen, 5·4 mm.

Marquesas Is.: Hiva Oa. 5 males, Matauuna, 3700 feet, 1.viii.1929, 4.iii.1930, on *Sclerotheca* sp. and *Rapanea* sp. (*Mumford and Adamson*); 4.iii., 1.viii.1929, on *Reynoldsia tahitensis* (*Mumford and Adamson*).

This species resembles *O. anthedon*, but can be immediately distinguished by bodily size and by the shape of the head. The vertex is relatively narrower, in *O. vafer* the disc of the frons is transversely much less convex, its lateral margins are more flaring, and the curve formed by the clypeus and frons is more shallow. Notwithstanding these very evident differences the general resemblance is quite close, and from a taxonomic standpoint it is a matter for relief that series of both species were taken in exactly the same locality.

Oliarus helxine sp. n. (Fig. 8, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (1·2 : 1), lateral margins shallowly concave, rather strongly elevated in posterior half, median carina distinct in basal half, obsolete distally; frons a little broader than long in middle line

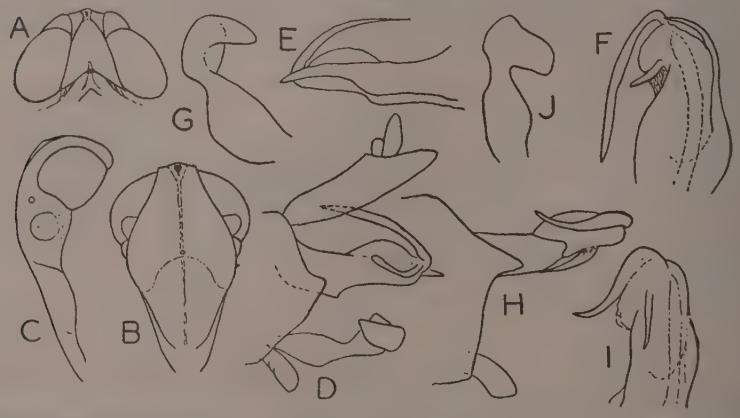

Fig. 8.—*Oliarus helxine* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, male genitalia, left side; E, aedeagus, left side; F, aedeagus, ventral view; G, genital style, posterolateral view. *O. helxine tahuatensis*; H, pygofer and aedeagus, left side; I, aedeagus, ventral view; J, genital style, posterolateral view.

(1·1 : 1), very feebly convex in profile, disc feebly transversely convex, lateral margins slightly inflected anteriorly, fenestrae present, median carina forked only at extreme base, fork sometimes obsolete, median ocellus present, obscure. Post-tibiae with 3 spines laterally,

6 apically ; basal metatarsal segment with 8 or 9 spines, second segment with 2 spines and 6 small teeth.

Ferruginous-castaneous ; carinae and margins of head, pronotum, mesonotum and tegulae testaceous. Tegmina hyaline with a distinct yellow tinge, powdered so as to appear sordid yellowish-white, veins reddish-brown, sometimes hyaline in an oblique band across basal third ; in female a light suffusion at base of tegmen, an irregular suffusion on corium at middle between *R* and Cu_{1b}, a suffusion just distad of claval apex, 3 spots in costal cell, a spot in subapical cell *R*, a spot in apical cell M_1, and a suffusion over each transverse vein of subapical line, orange-brown. Wings hyaline, powdered dilute fuscous or very sordid white, veins fuscous.

Male genitalia as figured. Aedeagus with a long, rather narrow, lobe arising on right at base sinuately directed caudad, incurved mesad at apex, which surpasses main limb of aedeagus ; 2 very unequal spinose processes arising on left, the anterior process arising subapically, directed dorsocephalad, little more than a third of the length of the longer process, blunt at apex, the longer process arising at apex, stout, directed cephalad and overlying aedeagus for almost its full length ; flagellum moderately long, apically acute but not at all produced.

Male : length, 4·7 mm. ; tegmen, 6·0 mm. *Female :* length, 4·8 mm. ; tegmen, 6·1 mm.

Marquesas Is. : Hiva Oa. Holotype and 5 males and 9 females, Matauuna, 3700–3760 feet, 1.viii.1929, 4.iii.1930, on *Vaccinium* sp., *Sclerotheca*, and *Reynoldsia tahitensis* (*Mumford and Adamson*) ; Feani ridge, 3900 feet, 19.vi. 1932, on *Cheirodendron* (*Le Bronnec*) ; Mt. Temetiu, 3000–4160 feet, 27.v., 21.vii.1929, 20.i.1932, on *Cheirodendron*, (*Mumford and Adamson*, *Le Bronnec*), 3800 feet, slope north of summit, 27.xii.1930, on *Weinmannia parviflora* (*H. Tauraa*) ; Feani crest, Tenatinaei, 3970 feet, 13.i.1932 (*Le Bronnec*). Holotype from Matauuna.

This species is distinguished by the shape of the head, bodily size, coloration, and structural details of the male genitalia. The yellowish-brown tinge on the tegmina, the brown veins and the mottled suffusion of brown, in conjunction with the relatively large size, make specimens easily recognisable.

A series of a male and two females from Tahuata seems to be referable to this species, but the aedeagal processes differ from those of the typical population.

Oliarus helxine tahuatensis subsp. n. (Fig. 8. H–J)

Of same size and coloration in both sexes as typical subspecies. Aedeagus with 2 unequal spinose processes arising on left at apex, the longer stout, extending cephalad for scarcely three-fifths of total length of aedeagus, the shorter process as long as flagellum and three-fifths of length of the longer spinose process ; flagellum short, membranous, unarmed.

Marquesas Is. : Tahuata. Holotype male of subspecies and 2 females, Amatea, 2600 feet, 27.vi.1930, on *Weinmannia parviflora* (*Le Bronnec and Tauraa*).

In the typical subspecies the longer of the two spinose processes which arise apically reaches cephalad for fully four-fifths of the total length of the aedeagus, and is distinctly more than twice as long as the shorter.

Oliarus atlas sp. n. (Fig. 9, A–F)

Vertex longer in middle line than broad at apex of posterior emargination (1·6 : 1), lateral margins strongly elevated in posterior two-thirds, median carina distinct only at base, otherwise absent; frons broader than long in middle line (1·3 : 1), in profile shallowly curved in basal half, straight in distal half, feebly transversely convex, lateral margins slightly inflected anteriorly, fenestrae present but obscure, median carina widely forked at extreme base, median ocellus present, distinct; clypeus in profile shallowly sinuate, rather strongly convex in basal half. Post-tibiae with 3 spines laterally, 6 apically; basal metatarsal segment with 7 spines, second segment with 6 spines.

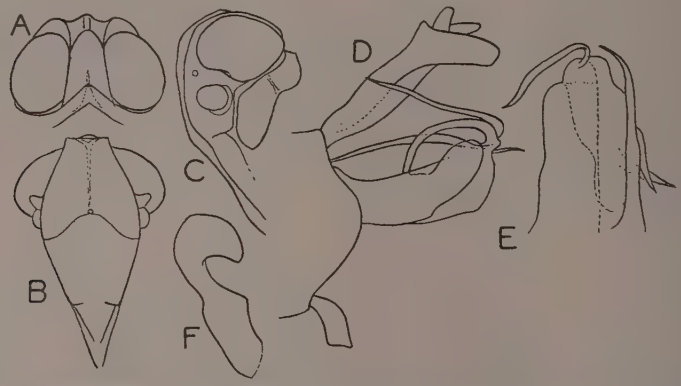

FIG. 9.—*Oliarus atlas* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, male genitalia, left side; E, aedeagus, ventral view; F, genital styles, posterolateral view.

Dark fuscous; disc of frons stramineous to light castaneous; margins and carinae of head, pronotum, mesonotum, and tegulae, and profemora and mesofemora at apex pallid stramineous or ivory. Tegmina hyaline, suffused dull yellow, stigma fuscous-piceous, membrane distad of a line from stigma to claval apex fuscous, veins concolorous, but transverse vein of basal cell, *R-M* cross vein, first fork of *M*, Cu_1 fork and union of claval veins fuscous, often with a light suffusion extending into the adjacent cells. Wings hyaline, powdered sordid white, with fuscous veins.

Male genitalia as figured. Anal segment of male in dorsal view narrowly ovate, apical margin short, concave. Aedeagus with a slender process arising basally on right directed caudad, gradually tapering and curved mesad distally; 2 slender equal spinose processes, arising apically and subapically respectively, on left, directed cephalad, distally decurved; flagellum moderately long, rather broad, distally rectangulately convex-truncate with distal angle produced cephalad in a long flattened tapering spinose process. Genital styles with apical lobe not produced in a narrow process.

Male: length, 4·6 mm.; tegmen, 5·9 mm.

MARQUESAS Is.: Hiva Oa. Holotype and 4 males, Matauuna, 3700 feet, 4.iii.1930 (*Mumford and Adamson*); Temetiu summit, 4160 feet, 20.i.1932, on *Reynoldsia* sp. (*Le Bronnec*). Holotype from Matauuna.

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. Even in a cursory inspection of material the fuscous membrane of the tegmina, and the dark fuscous clypeus contrasting with the lightly-coloured frons serve to identify the species.

Oliarus iliona sp. n. (Fig. 10, A–H)

Vertex as long in middle line as broad at apex of posterior emargination, lateral margins shallowly concave, rather strongly elevated in posterior two-thirds; median carina prominent in posterior half of disc, obsolete in anterior half; frons broader than long in middle line (1·5 : 1), straight in profile, fenestrae present, median carina forked in basal sixth, median ocellus feebly present, lateral margins of frons slightly bent forward; clypeus shallowly convex in basal half, straight in distal half. Post-tibiae with 2 or 3 spines laterally, 6 apically, basal metatarsal segment with 7 spines, second segment with 2 spines and 6 minute teeth.

Fig. 10.—*Oliarus iliona* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, anal segment, pygofer and aedeagus, left side; E, aedeagus, right side; F, aedeagus, ventral view; G, genital style, lateral view; H, genital style, posterolateral view.

Castaneous-fuscous, lighter on frons and clypeus; margins and carinae of head and pronotum and tegulae, testaceous-stramineous, carinae of mesonotum ferruginous. Tegmina hyaline, powdered sordid greyish-white, a suffusion over basal cell, Sc+*R* fork, Cu_1 fork, union of claval veins, *M* in corium at middle, common claval vein near and at apex, stigma and all veins distad of nodal line of cross-veins, fuscous; sometimes 3 spots in costal cell, a spot in cell *R* distad of nodal line, a suffusion on margin just distad of claval apex, a suffusion at anal angle, and a few suffused areas around margin sometimes fuscous, sometimes not developed. Wings hyaline, powdered sordid white, with fuscous veins.

Male genitalia as figured. Aedeagus with a vertical lobe on right side distally, with its 3 angles each strongly but unequally produced in a spinose process, 2 directed caudad and 1 cephalad; 2 unequal spinose processes arising on left at apex of aedeagus, both directed cephalad, 1 two-thirds as long as the other; flagellum short, unarmed distally.

Male: length, 4·6 mm.; tegmen, 5·6 mm. *Female:* length, 4·0 mm.; tegmen, 5·3 mm.

Marquesas Is.: Hiva Oa. Holotype male and 1 female, Tepuna, 3010 feet, 1.viii.1929 (*Mumford and Adamson*).

This species is distinguished by the shape of the head, by coloration, and by details of male genitalic structure.

Oliarus plancina sp. n. (Fig. 11, A–D)

Vertex longer in middle line than broad at apex of posterior emargination (nearly 1·4 : 1), lateral margins strongly elevated, median carina prominent at extreme base, absent elsewhere; frons broader than long in middle line (nearly 1·2 : 1), feebly convex in profile, disc weakly transversely convex, lateral margins moderately inflected anteriorly, both pre-ocellar and pre-antennal fenestrae distinct, median carina forked about one-third from base, median ocellus small, distinct; clypeus in profile convex in basal two-thirds, shallowly sinuate in apical third. Post tibiae with 3 spines laterally, 6 apically, basal metatarsal segment with 8 spines, second metatarsal with 2 spines and 6 teeth between them.

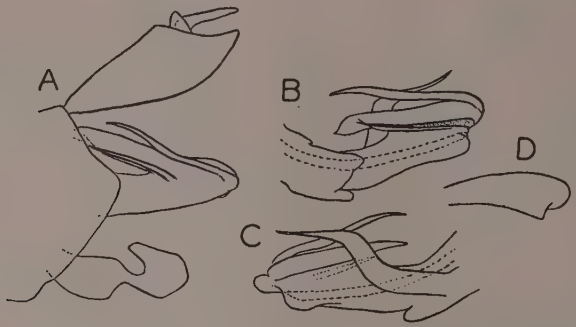

Fig. 11.—*Oliarus plancina* sp. n.: A, male genitalia, left side; B, aedeagus, left side; C, aedeagus, right side; D, apex of flagellum, right side.

Testaceous, mesothorax and legs dilute fuscous; margins and carinae of head, pronotum and mesonotum stramineous, abdomen at least dorsally, and genitalia, fuscous. Tegmina hyaline suffused with yellow on corium, very lightly powdered greyish-white, subapical row of cells in membrane and posterior margin of stigma infuscate; veins stramineous with brown granules, costa narrowly lined submarginally with brown, venation of membrane fuscous. Wings hyaline, fuscous in distal half, powdered sordid white in basal half, veins entirely fuscous.

Male genitalia as figured. Anal segment of male in dorsal view ovate. Aedeagus with a strongly sinuate laterally compressed narrow lobe arising on right basally directed caudad, sinuately tapering to acute apex; 2 almost equal long slender spinose processes arising on left at apex directed cephalad above aedeagus in repose; flagellum slightly surpassing these processes, membranous, distally rounded, unarmed. Genital styles with apical lobe short, subtriangularly produced laterad.

Male: length, 4·2 mm; tegmen, 6·2 mm. *Female:* length, 5·3 mm.; tegmen, 6·8 mm.

Marquesas Is.: Fatu Hiva. Holotype and 2 males and 5 females, ridge east of Oomoa Valley, 3100 feet, 28.viii.1930, on *Reynoldsia tahitensis* (*Le Bronnec*).

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. The general ground-colour of the head and thorax, lighter than that of *O. atlas* and darker than that of *O. dido*, separates this species from the other two which share an infuscate membrane

in the tegmina. The resembance to *O. atlas* is quite close, and accordingly it is surprising to find that these species differ profoundly in the armature of the hind margin of the second post-tarsal segment.

Oliarus coronis sp. n. (Fig. 12, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (1·4 : 1), lateral margins shallowly concave, strongly elevated in posterior two-thirds, median carina present only at base of middle line ; frons broader than long in middle line (1·4 : 1), almost straight in profile, disc feebly convex transversely, pre-antennal and pre-ocellar fenestrae distinct, median carina prominent, subfoliately elevated, median ocellus small, fairly distinct ; lateral margins strongly sinuate, foliately produced laterad but only weakly inflected anteriorly ; clypeus in profile moderately convex in basal half, feebly sinuate in distal half. Post-tibiae with 2 spines laterally, 6 apically ; basal metatarsal segment with 7 spines, second segment with 6 spines in male, 8 in female.

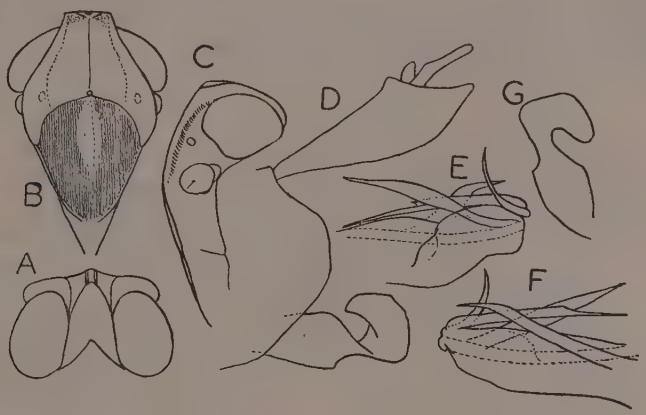

Fig. 12.—*Oliarus coronis* sp. n. : A, vertex ; B, frons and clypeus ; C, head in profile ; D, anal segment, pygofer, and genital style, side view ; E, aedeagus, left side ; F, aedeagus, right side ; G, genital style, posterolateral view.

Castaneous-piceous : frons entirely, median carina and lateral margins of clypeus, rostrum, margins and carinae of vertex, pronotum, mesonotum and tegulae pallid ochraceous or ivory. Tegmina yellowish hyaline, little powdered, veins and stigma reddish-brown with darker granules, transverse veinlets with fuscous suffusion slightly extending into membrane, forks of *M*, Cu_1 and union of claval veins brown in female. Wings hyaline, little powdered, veins reddish-brown.

Male genitalia as figured. Anal segment in dorsal view narrowly ovate, lateral margins meeting acutely at apex. Aedeagus with a narrow, laterally-compressed process arising on right at base, directed dorsocaudad, slightly decurved and acuminate at apex, 2 unequal spinose processes arising on left at apex, the longer directed cephalad above aedeagus, the shorter curved dorsad ; flagellum rather long, its right margin strongly produced cephalad distally in a slender spinose process which reaches almost to base of aedeagus.

Male : length, 4·5 mm. ; tegmen, 5·7 mm. *Female :* length, 5·0 mm. ; tegmen, 6·2 mm.

Marquesas Is.: Hiva Oa. Holotype and 3 males and 2 females, Temetiu ridge, 3900 feet, 14.i.1937, on *Weinmannia* (*Le Bronnec*); Kaava ridge, 2820 feet, 6.i.1932, on *Rapanea* sp. (*Le Bronnec*). Holotype from Temetiu.

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. The colouring of the frons and clypeus and the bodily size can be matched in combination only by *O. atlas*, from which the present species is readily distinguishable by the more strongly sinuate margin of the frons, as well as by the colour of the tegminal membrane.

Oliarus amyntor sp. n. (Fig. 13, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (between 1·3 : 1 and 1·4 : 1), lateral margins strongly elevated, median carina prominent on basal third of disc, otherwise absent; frons broader than long in middle line (slightly more than 1·3 : 1), feebly convex in profile, disc moderately transversely convex, lateral margins moderately inflected anteriorly, pre-antennal and pre-ocellar fenestrae feeble but indicated, median carina forked about one-third from base, median ocellus small, obscure; clypeus in profile strongly convex in basal half, feebly sinuate in apical half. Post-tibiae with 2 spines laterally, 6 apically; basal metatarsal segment with 7 spines distally, second segment with 2 spines and 5 teeth between them.

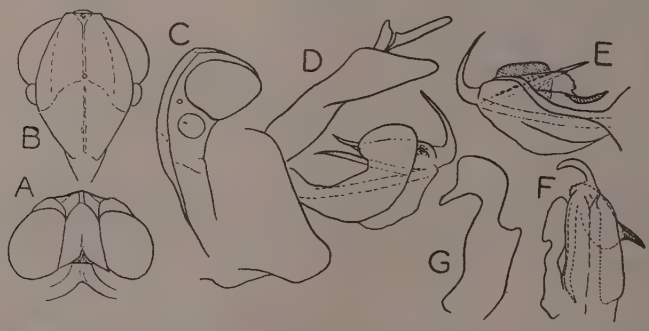

Fig. 13.—*Oliarus amyntor* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, anal segment, pygofer and aedeagus, left side; E, aedeagus, right side; F, aedeagus, ventral view; G, genital style, posterolateral view.

Testaceous-stramineous; clypeus at apex, rostrum at apex, abdomen and genitalia fuscous. Tegmina yellowish hyaline, little powdered with wax, veins of corium stramineous with granules concolorous; stigma, granules on veins of subapical cells, apical veins, transverse veinlets of subapical line, and apical margin, fuscous. Wings hyaline, powdered greyish-white, becoming slightly sordid distally, veins fuscous.

Male genitalia as figured. Anal segment of male in dorsal view ovate, broadest distad of middle. Aedeagus with a narrow laterally-compressed lobe arising on right basally, directed caudad, slightly ascending, acuminate distally; 2 unequal spinose processes arising on left at apex, the longer directed cephalad, lying close above aedeagus, the shorter directed dorsomesad; flagellum long, surpassing even the longer spinose process, abruptly narrowed distally with upper angle produced cephalad in a rather short slender spine. Genital styles with apical lobe strongly produced laterad in a slender acuminate process. *Male:* length, 3·9 mm.; tegmen, 4·8 mm.

Marquesas Is.: Hiva Oa. Holotype and 8 males, 12 females and 5 nymphs, Matauuna, 3700 feet, 4.iii.1930 (*Mumford and Adamson*); Mt. Temetiu, 3800 feet, slope north of summit, 27.xii.1936, on *Weinmannia parviflora* (*H. Tauraa*); summit, 4160 feet, 20.i.1932, on *Metrosideros collina*, *Cyrtandra*, *Weinmannia*, and beating *Freycinetia* (*Le Bronnec*); Feani summit, 3900 feet, on *Reynoldsia* sp. (*Le Bronnec*); Kaava Ridge, 2820 feet, 6.i.1932. beating *Cheirodendron* sp. (*Le Bronnec*). Holotype from Matauuna.

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. It is apparently the Hiva Oan equivalent of *O. plancina* and *O. dido*. It differs from the former in the paler tegminal membrane, and from the latter, which it closely resembles, in the greater obliquity of the latero-apical areolets of the vertex. It is of interest that this species occurs in the same locality as *O. atlas*.

Oliarus clyte sp. n. (Fig. 14, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (1·4 : 1), lateral margins strongly elevated in posterior two-thirds, median carina distinct only at base, obsolete distally; frons broader than long in middle line (nearly 1·4 : 1), almost straight in profile, disc very feebly transversely convex, lateral margins only slightly inflected

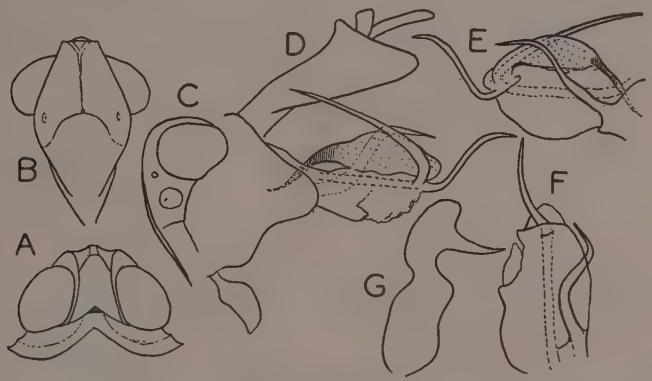

Fig. 14.—*Oliarus clyte* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, anal segment, pygofer and aedeagus, left side; E, aedeagus, right side; F, aedeagus, ventral view; G, genital style, posterolateral view.

anteriorly; fenestrae distinct, median carina forked about one-third from base, median ocellus present but very obscure; clypeus in profile shallowly convex near base, straight distally; in anterior view with a very distinct deep impression on each side of middle line at base. Post-tibiae with 3 spines laterally, 6 apically; basal metatarsal segment with 7 spines, second metatarsal with 2 spines and 6 teeth between them.

Reddish brown; disc of frons and clypeus testaceous with light reddish-brown suffusion; carinae and margins of head and thorax testaceous, frontoclypeal suture near middle and edges of clypeal disc inside lateral margins, dark fuscous. Tegmina distinctly yellowish hyaline, very sparsely powdered, veins testaceous with granules light reddish-brown, stigma and transverse veinlets of subapical line, fuscous. Wings hyaline, powdered white, with fuscous veins.

Male genitalia as figured. Anal segment of male in dorsal view ovate, tectiform Aedeagus with a slender process arising basally on right, curved upward distad, deflexe ventrocaudad near apex almost through 90 degrees; two long, slightly unequal, spinos processes arising at apex on left, directed dorsocephalad in repose, the basal process slightl longer than the distal; flagellum long, surpassing the longer spinose process, sclerotise distally and produced cephalad in a curved spine. Genital styles constricted above middl distal lateral margin strongly produced laterad in a narrowly finger-like or pointed lob

Male: length, 3·3 mm.; tegmen, 5·2 mm. *Female:* length, 3·8 mm.; tegme 5·5 mm.

Marquesas Is.: Hiva Oa. Holotype, 1 male and 1 female, Matauuna 3700 feet, 4.iii.1930 (*Mumford and Adamson*).

This species is distinguished by the shape of the head, bodily size, coloration and structure of male genitalia. Of superficial characters the most obvious i the dark oval which bounds the lighter convex and striated portion of the clypea disc, and which itself is bordered laterally by the pale lateral clypeal margins

Oliarus dido sp. n. (Fig. 15, A–H)

Vertex longer in middle line than broad at apex of posterior emargination (1·5 : 1 lateral margins strongly elevated in posterior two-thirds, median carina prominent i basal half of disc, absent from apical half; frons broader than long in middle line (1·3 : 1 feebly convex in profile, disc weakly transversely convex, lateral margins only slightl

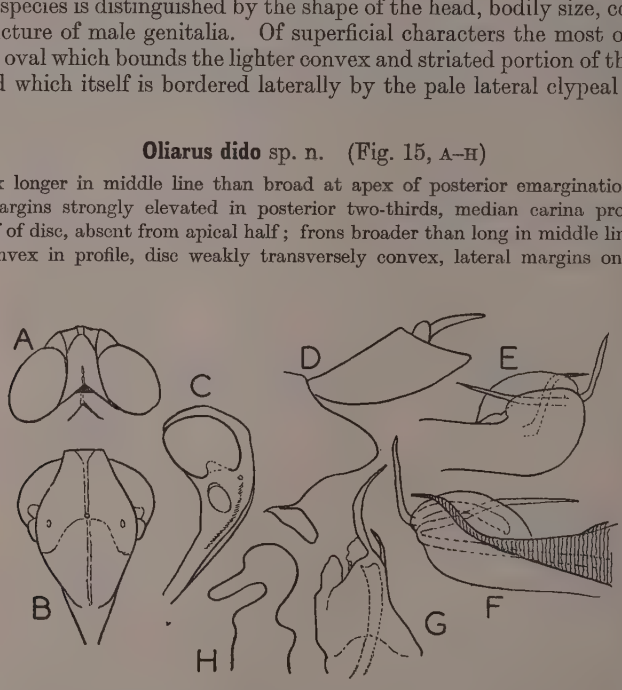

Fig. 15.—*Oliarus dido* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, ana segment and pygofer; E, aedeagus, left side; F, aedeagus, right side; G, aedeagus ventral view; H, genital style, posterolateral view.

inflected anteriorly, both pre-antennal and pre-ocellar pairs of fenestrae distinct, media carina forked about one-quarter from base, median ocellus small, moderately distinct clypeus strongly convex in basal half, straight distally. Post-tibiae with 3 spines laterally 6 apically; basal metatarsal segment with 8 spines apically, second segment with 2 spine and 6 teeth between them.

Stramineous; dorsal surface of abdomen, and genitalia fuscous. Tegmina hyaline suffused with yellow on corium, very lightly powdered greyish-white; veins in coriun

stramineous, distad of nodal line reddish-brown; stigma and apical margin fuscous. Wings hyaline, powdered white, veins distally reddish-brown, basally stramineous.

Male genitalia as figured. Anal segment of male in dorsal view ovate, widest distad of middle, apical margin concave. Aedeagus with a slender laterally-compressed sinuate process arising basally on right directed caudad, tapering distally to a point and weakly bent mesad, 2 subequal long slender spinose processes arising on left at apex, directed dorsocaudad above aedeagus in repose; flagellum about three-quarters as long as aedeagus, deflexed and acute distally, but little produced. Genital styles with apical lobe strongly produced laterad in a stout finger-like lobe.

Male: length, 3·7 mm.; tegmen, 4·9 mm. *Female:* length, 3·7 mm.; tegmen, 5·0 mm.

Marquesas Is.; Tahuata. Holotype and 3 males, Amatea, 2600 feet, 28.vi.1930, on *Metrosideros collina* (*Le Bronnec and Tauraa*).

This species is distinguished by the shape of the head, bodily size, coloration and structural details of the male genitalia. The size, and the light stramineous coloration of the forebody sharply contrasting with the dark fuscous abdomen and genitalia, and the colour of the tegminal veins serve to identify this species. The collection also includes two males from Haaoipu summit, 2700 feet, vii.1930 (*Le Bronnec and Tauraa*) taken on *Metrosideros collina*, and a female from Vaitupaahei, 2500 feet (*Le Bronnec and Tauraa*), on the same host. These specimens stand apart from the typical population—in the male, in the outline of the apical portion of the genital styles, and, in the female, in the presence of a dilute brown suffusion in the ground-colour of the head and thorax, and, in both sexes, in the presence of a fuscous suffusion occupying about half the area of the tegminal membrane, and extending from the stigma to Cu_1. It is here assumed that at least two geographical subspecies exist on Tahuata, but until a longer series of each has been studied it is inadvisable to give them nomenclatorial recognition.

Oliarus telagonus sp. n. (Fig. 16, A–F)

Vertex longer in middle line than broad at base of posterior emargination (1·4 : 1), lateral margins straight, weakly converging distad, rather strongly elevated in posterior two-

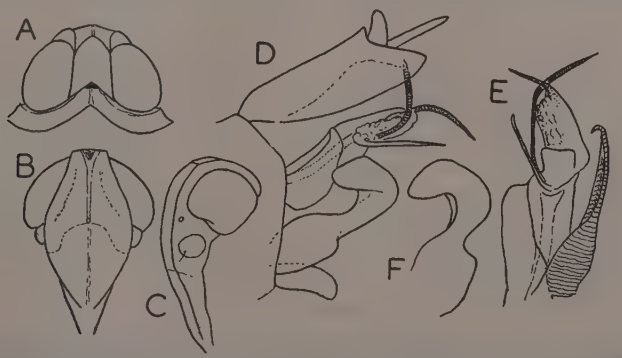

Fig. 16.—*Oliarus telagonus* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, male genitalia, left side; E, aedeagus; ventral view; F, genital style, posterolateral view.

thirds, median carina prominent basally, obsolete apically; frons broader than long in middle line (1·2 : 1), feebly convex in profile, lateral margins flaring, inflected anteriorly, median carina prominent, forked in basal sixth, median ocellus present, obscure; clypeus in profile sinuate, distinctly convex in basal half. Post-tibiae with 2 spines laterally, 6 apically; basal metatarsal segment with 8 spines, second segment with 2 spines and 6 small teeth between them.

Fuscous-piceous; lateral margins and carinae of head and pronotum partly ferruginous and partly ivory, the last on lateral margins of frons at its widest part, on basal angles of vertex and on pronotum. Tegmina hyaline powdered greyish-white, venation uniformly castaneous-fuscous, except Cu_2 (claval suture) which is pale stramineous, stigma fuscous-piceous. Wings hyaline, powdered greyish-white, veins fuscous.

Male genitalia as figured. Anal segment of male broadly ovate. Aedeagus with a broad lobe arising on right at base, strongly narrowed distad into a spinose process which is curved ventrad apically; 2 unequal spinose processes arising on left at apex of aedeagus, the distal process longer, obtusely angulately bent at middle, the shorter process sinuately porrect; flagellum moderately long, distally abruptly narrowed and produced in a long slender spinose process.

Male: length, 3·6 mm.; tegmen, 4·5 mm. *Female:* length, 3·6 mm.; tegmen, 4·6 mm.

Marquesas Is.: Tahuata. Holotype and 3 males and 3 females, Haaoipu summit, 2700 feet, 7.vii.1930, beating *Metrosideros collina* (*Le Bronnec and Tauraa*); Amatea, 2700 feet, 7.vii.1930, on *Weinmannia parviflora* (*Le Bronnec and Tauraa*). Holotype from Haaoipu.

This species is distinguished by the shape of the head, bodily size, coloration and structural characters of the male genitalia. It is not readily recognisable by distinctive features, but the ferruginous and pallid ochraceous or ivory margins and carinae, coupled with geographical distribution, serve to locate a female specimen.

Oliarus symmysta sp. n. (Fig. 17, A–H)

Vertex longer in middle line than broad at apex of posterior emargination (2 : 1), lateral margins strongly elevated in posterior half, parallel or very feebly convex, median carina distinct at base, otherwise absent; frons as long in middle line as broad at widest part, or a very little longer than broad (less than 1·1 : 1), feebly convex in profile, disc weakly transversely convex, lateral margins foliate, rather strongly inflected anteriorly, pre-ocellar and pre-antennal fenestrae distinct, median carina subfoliately elevated, simple on disc, basal fork minute, obsolete, median ocellus present, distinct; clypeus in profile shallowly convex in basal half, straight in distal half.

Stramineous; median portion of all discal areas of head and thorax brown, legs longitudinally striped with brown; abdomen and genitalia castaneous-fuscous. Tegmina hyaline, powdered greyish-white, veins on corium testaceous or stramineous with ferruginous granules, stigma, veins distad of nodal line, and a suffusion over transverse veinlets fuscous; a spot at basal cell, fork of Cu_1 and union of claval veins lightly overlain with reddish-brown. Wings hyaline, powdered sordid white, veins fuscous.

Male genitalia as figured. Anal segment of male in dorsal view, with right side distally more deflexed than left, apical margin very short, transverse-concave. Aedeagus with a broadly ovate lobe underlying main limb, slightly to left, a laterally-compressed acuminate lobe on right side directed caudad; 2 long sinuate spinose processes arising on left at apex, one more or less straight, directed dorsocephalad above aedeagus, the other strongly curved

in its distal half; flagellum long, slightly surpassing the longer process, sclerotised along one margin which tapers to apex. Genital styles with apical lobe shaped like an axe-head.

Male: length, 4·7 mm.; tegmen, 5·0 mm.

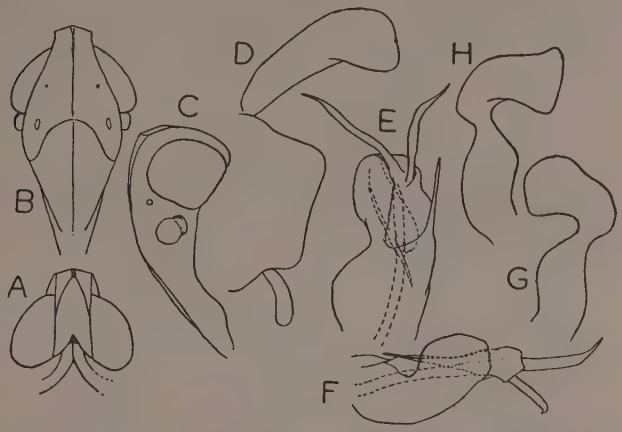

Fig. 17.—*Oliarus symmysta* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, anal segment and pygofer, left side; E, aedeagus, ventral view; F, aedeagus, left side; G, right genital style, posterolateral view; H, left genital style, posterolateral view.

Marquesas Is.: Uapou. Holotype and 1 male, Hakahetau Valley, 2500 feet, 8.xii.1929 (*A. M. Adamson*); Tekohepu summit, 3300 feet, 27.xi.1931, on *Weinmannia* (*Le Bronnec*). Holotype from Hakahetau.

This species is distinguished by the shape of the head, bodily size, coloration, and structural details of the male genitalia. It is easily identified by the narrow parallel-sided vertex and the relatively long frons with its strongly elevated median carina.

Oliarus zancha sp. n. (Fig. 18, A–H)

Vertex relatively narrow, longer in middle than broad at middle of posterior margin (1·8 : 1), lateral margins strongly elevated; frons broader than long in middle line (nearly 1·4 : 1), convex in profile, fenestrae distinct.

Post-tibiae with 3 spines laterally, 6 apically, basal metatarsal segment with 8 teeth, second metatarsal with 2 distinct and 5 or 6 very small teeth.

Stramineous or pallid ochraceous, mesonotum, and metanotum, dorsal surface of abdomen, and male and female genitalia castaneous or fuscous. Tegmina of male hyaline, powdered greyish-white, a suffusion across base at union of claval veins, 3 faint spots at fork of Cu_1, stigma, all veins at apex, and a distinct suffusion overlying transverse veinlets of apical line, castaneous or ferruginous. Wings hyaline, powdered white, with venation basally stramineous, distally castaneous.

Tegmina of female differing from that of male in that the spot at the fork of Cu_1 spreads to *M* and to the claval suture, and the ferruginous spot at the union of the claval veins and the suffusion over each transverse veinlet are more evident, while the *R–M* and *M–Cu* cross-veins at the nodal line are also ferruginous.

Male genitalia as figured. Aedeagus in dorsal view about twice as long as broad, a stout spinose process arising on left at apex, directed cephalad and to right above aedeagus, flagellum short, membranous, arising on left at apex, reflected cephalad above aedeagus, a large yellow-pigmented lobe on right side produced mesoventrad at its apex in a short spinose process.

Male: length, 3·9 mm.; tegmen, 5·0 mm. *Female:* length, 3·7 mm.; tegmen, 5·5 mm.

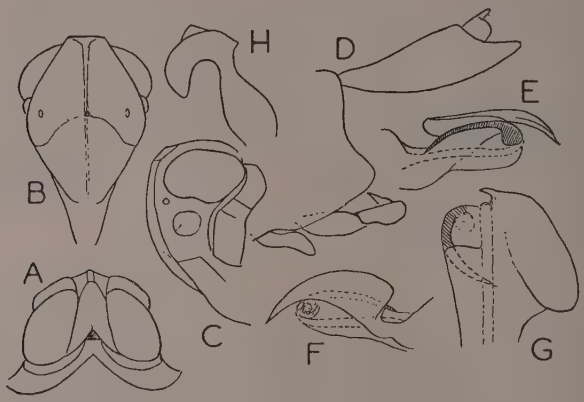

FIG. 18.—*Oliarus zancha* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, anal segment, pygofer and genital style, left side; E, aedeagus, left side; F, aedeagus, right side; G, aedeagus, ventral view; H, genital style, postero-lateral view.

MARQUESAS IS.: Uapou. Holotype and 17 males and 14 females, Tekohepu summit, 3200 feet, 28.xi.1931, on *Cheirodendron*, *Metrosideros collina*, *Weinmannia*, *Cyrtandra* and ferns (*Le Bronnec*); 2 males, Teavaituhai, Hakahetau Valley, 3020 feet, 19.xi.1931, beating *Freycinetia* sp. (*Le Bronnec*). Holotype from Tekohepu.

This species is distinguished by the proportions of the head and by the coloration. The difference in the appearance of the tegmina between opposite sexes is more striking than the description might suggest. In the aedeagus only one process is developed on the left: there is no trace of a second process on this side.

Oliarus thamyras sp. n. (Fig. 19, A–F)

Vertex longer in middle line than broad at apex of posterior emargination (1·5 : 1), lateral margins shallowly concave, moderately elevated in posterior half, median carina prominent in basal half of disc, absent distally, anterior margin of latero-apical facets transverse, moderately distinct; frons as long in middle line as broad at widest part, distinctly convex in profile and distinctly transversely convex, fenestrae absent, median carina distinct, rather obscurely forked near base, median ocellus small, not prominent, lateral margins not or scarcely inflected anteriorly; clypeus medially carinate, in profile moderately convex basally, straight distally, forming with frons a smooth shallow curve.

Post-tibiae with 2 or 3 spines laterally, 6 apically, basal metatarsal segment with 7 spines, second segment with 2 spines and 4, sometimes 5, small teeth between them.

Dark castaneous; lateral margins of frons distally, lateral margins of vertex basally, and tegulae, testaceous, rostrum and legs stramineous, antennae pallid stramineous or ivory white. Tegmina hyaline, powdered milky-white, stigma and apical margin dilute fuscous; veins concolorous with ground, stramineous-hyaline, granules sparse, of same colour as veins. Wings hyaline, powdered white, with stramineous veins.

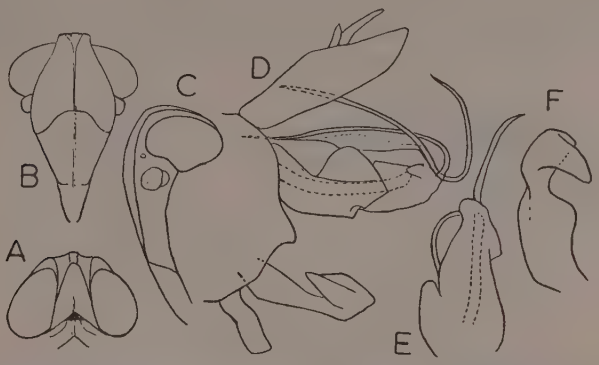

FIG. 19.—*Oliarus thamyras* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, male genitalia, left side, E, aedeagus, ventral view; F, genital style, posterolateral view.

Male genitalia as figured. Anal segment elongate-ovate, steeply tectiform. Pygofer with left posterior margin abruptly produced caudad at middle in a very short triangular lobe, right posterior margin broadly convex. Aedeagus with main limb emerging from a broad pigmented collar-like tubular base, 2 very long unequal spinose processes arising on left at apex, directed dorsocephalad, the longer process reaching almost to base of aedeagus; flagellum exceptionally long, narrow, sclerotised on upper surface and produced distally in a spinose process which reaches completely to base of aedeagus.

Male: length, 4·0 mm.; tegmen 4·7 mm. *Female:* length, 4·5 mm.; tegmen, 5·3 mm.

MARQUESAS IS.: Uapou. Holotype and 1 male and 1 female, Hakahetau Valley, 1500 feet, 14.xii.1929 on *auketaha* (fern) (*R. R. Whitten*).

This species bears a strong superficial resemblance to the sympatric *O. maia* but can be immediately recognised by the pallid antennae; a further point of difference between the two species is that in *O. maia* there is a row of widely spaced coarse granules just inside the costal margin, whereas no granules occur in this position in *O. thamyras*. From other species *O. thamyras* is well separated by coloration and by the structure of the male genitalia.

Oliarus maia sp. n. (Fig. 20, A–G)

Vertex quadrate, longer in middle line than broad at apex of posterior emargination (1·1 : 1), lateral margins weakly converging distad, feebly elevated in posterior half, median carina distinct, prominent at base, obsolete at apex, anterior margin of lateroapical facets oblique, not nearly transverse, feebly defined; frons as long in middle line as broad at

widest part, feebly convex in profile, fenestrae obsolete or indicated, median carina absent or obsolete, median ocellus small, not prominent, lateral margins not at all elevated; clypeus medially carinate, in profile forming with frons a smooth shallow curve. Post-tibiae with 2 or 3 spines laterally, 6 apically, widely separated in equal groups of 3, basal metatarsal segment with 7 teeth, second segment with 2 moderately large and 6 minute teeth.

Male castaneous-piceous with rostrum and legs testaceous. Tegmina yellowish-hyaline, powdered white, thus assuming a milky-white hue, stigma and veins concolorous. Wings sordid white with distal venation slightly infuscate. Female reddish-brown with legs testaceous. Tegmina hyaline, suffused yellowish-brown, stigma and veins concolorous. Wings sordid white with distal venation fuscous.

FIG. 20.—*Oliarus maia* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, male genitalia, left side; E, aedeagus, right side; F, aedeagus, posteroventral view; G, genital style, posterolateral view.

Male genitalia as figured. Anal segment ovate, tectiform. Pygofer with lateral margins sinuately convex, medioventral process in ventral view long and relatively narrow. Aedeagus in dorsal view about twice as long as broad, a long spinose process arising at apex directed to left, then dorsad and finally to right; a long spinose process arising on right side of base of flagellum directed cephalad; a small and much more slender process arising on left side of flagellum, also directed cephalad.

Male: length, 3·8 mm.; tegmen, 4·6 mm. *Female:* length, 4·6 mm.; tegmen, 5·1 mm.

MARQUESAS IS.: Uapou. Holotype and 8 males and 7 females, Tekohepu summit, 3000–3200 feet, 27, 28.xi.1931, on ferns, *Cyathea* sp., and *Metrosideros collina* (*Le Bronnec*).

This species, irrespective of sex, is immediately distinguished from all but *O. thamyras* by the convex and medially ecarinate frons; the coloration of the antennae is distinctive. The male genitalia are quite distinct.

Oliarus parasanga sp. n. (Fig. 21, A–H)

Vertex longer in middle line than broad at apex of posterior emargination (1·7 : 1), lateral margins very shallowly concave, almost parallel, strongly elevated in posterior two-thirds, frons broader than long in middle line (nearly 1·3 : 1), very feebly convex in

profile, transversely distinctly convex, fenestrae absent, median carina prominent, forked very close to base, median ocellus distinct, not prominent, lateral margins rather strongly flaring; clypeus in profile strongly convex in basal half, more or less straight in distal half. Post-tibiae with 2 spines laterally, 6 apically; basal metatarsal segment with 2 moderately large and 6 small spines, second segment with 2 spines and 6 minute teeth.

Castaneous-fuscous; carinae and margins of head, pronotum and tegulae stramineous, lateral margins of frons broadly so; mesonotal carinae ferruginous or concolorous with disc; legs testaceous with castaneous suffusion, the suffusion darkest on the hind legs. Tegmina greyish hyaline, venation and stigma castaneous. Wings greyish hyaline with castaneous-fuscous veins.

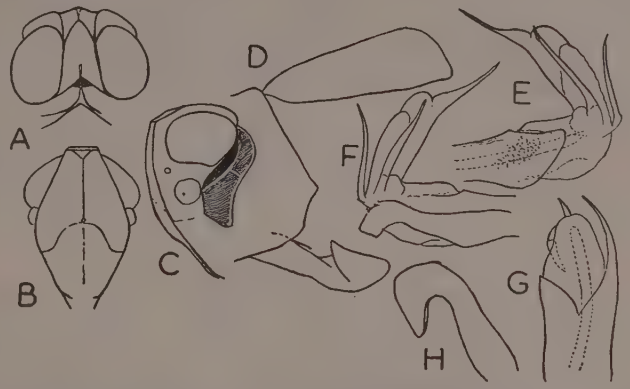

FIG. 21.—*Oliarus parasanga* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, anal segment, pygofer and genital style, left side; E, aedeagus, left side; F, aedeagus, right side; G, aedeagus, ventral view; H, genital style, posterolateral view.

Male genitalia as figured. Aedeagus with a vertical pigmented lobe on right side narrowing distad, acuminate at apex; a pair of long slender spinose processes arising on left at apex of aedeagus, both sinuately directed cephalad, the lower distinctly longer than the upper; flagellum long, more or less flattened dorsoventrally, distally truncate with one angle produced cephalad in a slender spinose process.

Male: length, 3·5 mm.; tegmen, 4·2 mm. *Female:* length, 3·3 mm.; tegmen, 4·2 mm.

MARQUESAS IS.: Nukuhiva. Holotype and 29 males, 15 females and 1 mutilated specimen, Tekao Hill, 3200 feet, 23.vii.1931 (*Le Bronnec and Tauraa*). Tapuaooa Hill, 3500 feet, 21.vii.1931, (*Le Bronnec and Tauraa*); ridge north of Teuanui, 2800 feet, 26.x.1929, on *Wickstroemia foetida* (*Mumford and Adamson*); Ooumu, 3400 feet, 11.xi.1929, beating *Weinmannia parviflora* (*Mumford and Adamson*), 3000 feet, 29.v.1931, on *Weinmannia parviflora* (*Le Bronnec and Tauraa*). Holotype from Tekao Hill.

Included in the above total are a male and 3 females taken at Ooumu (4050 feet, 12.xi.1929 (*Mumford and Adamson*)) on *Weinmannia parviflora* which differ from all the others in being much lighter in ground colour—yellowish-brown instead of dark castaneous. The external appearance is otherwise quite similar. The genitalia of the male were dissected and likewise were found to agree with those of the type. It would seem unlikely that all the

specimens were teneral, and had not developed their full pigmentation: it would seem more probable that the effect is environmental, and perhaps associated with temperature.

Oliarus sutrinus sp. n. (Fig. 22, A–G)

Vertex longer in middle line than broad at apex of posterior emargination (1·4 : 1), lateral margins feebly sinuate, almost parallel, rather strongly elevated in posterior two-thirds, median carina present only at extreme base; division between latero-apical areoles obsolete (though indicated by colour) so that these form a single compartment, frons as long in middle line as wide at widest part, straight in profile, fenestrae obsolete or very faintly indicated, median carina very prominent; lateral margins subfoliate, inflected slightly anteriorly; clypeus in profile weakly sinuate, only very shallowly convex in basal half. Post-tibiae with 2 spines laterally, 6 apically; basal metatarsal segment with 8 spines, second segment with 2 spines and 6 small teeth between them.

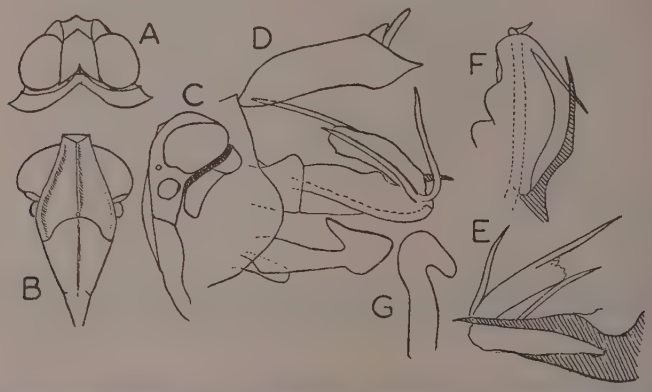

Fig. 22.—*Oliarus sutrinus* sp. n.: A, vertex and pronotum; B, frons and clypeus; C, head in profile; D, male genitalia, left side; E, aedeagus, left side; F, aedeagus, ventral view; G, genital style, posterolateral view.

Castaneous-fuscous; carinae and margins of head, pronotum and tegulae testaceous-stramineous; carinae of mesonotum ferruginous. Tegmina hyaline, powdered sordid greyish-white, veins fuscous-ferruginous, stigma fuscous. Wings hyaline, powdered sordid white, but becoming distinctly infuscate near apical margin, veins fuscous.

Male genitalia as figured. Aedeagus with a vertical, laterally compressed, sinuately tapering lobe arising at base on right, directed caudad, acuminate at apex; 2 spinose processes arising on left at apex, directed cephalad, the lower process slightly longer than the upper; membranous portion of flagellum about as long as the longer of these processes, but produced on right at its apex in a long slender sclerotised and pigmented spinose process which reaches to base of aedeagus.

Male: length, 5·1 mm.; tegmen, 6·0 mm.

Marquesas Is.: Nukuhiva. One male, the holotype, Ooumu, 4050 feet, 13.xi.1929 (*Mumford and Adamson*).

In general features, and especially in the structure of the aedeagus, this species resembles the sympatric *O. parasanga*, but the structure of the head, the

more explanate carriage of the tegmina, and the bold tegminal markings, as well as bodily size, readily distinguish it. The male genitalia of the two species differ substantially in points of detail but these are less obvious than the superficial differences.

VI. Family Delphacidae Leach

Subfamily Asiracinae

Genus *Ugyops* Guérin-Méneville

Guérin-Méneville, 1834, *Voy. aux Indes Belanger* **1** : 477. Haplotype, *Ugyops percheronii* Guérin-Méneville, *op. cit.*

The section of the genus centred on *U. kinbergi*, so widespread in the western Pacific, appears to be totally unrepresented in south-east Polynesia, where all species show affinity with the *U. samoaensis* group. Species are perhaps most simply separable by the relative lengths of the antennal segments, but these are not always strictly in the same proportion in both sexes, though the difference is usually slight. The measurements given in the descriptions which follow refer to the male unless otherwise stated.

Ugyops oromedon sp. n. (Fig. 23, A–E)

Vertex twice as long in middle line as broad at basal margin, wider at apex than at base (1·4 : 1), lateral margins straight, diverging distad, anterior margin convex with median area only feebly prominent, mediolateral carinae converging distad, passing separately on to frons, united by a short transverse carina ; frons in middle line longer than broad (1·8 : 1), submedian carinae separate, united at extreme apex ; clypeus with median carina obsolete

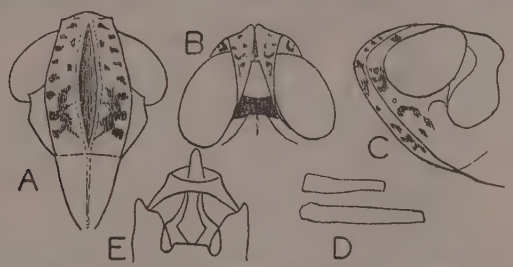

Fig. 23.—*Ugyops oromedon* sp. n. : A, frons and clypeus ; B, vertex ; C, head in profile ; D, first and second antennal segments ; E, male genitalia, ventral view.

or absent, genae in anterior view moderately angulate below antennae, slightly inflated ; ocelli indicated by a spot but apparently not functional, antennae long, second segment longer than first (1·6 : 1), eye in side view longer than broad (1·4 : 1). Tegmina a little surpassing apex of abdomen, dorsal (commissural) margin in side view horizontal, $Sc + R$ forking about two-fifths of length of tegmen from base, Cu_1 forked at level of union of claval veins. Wings fully developed, not quite as long as tegmina.

Testaceous-stramineous ; spots and transverse bars on frons, genae near antennae, lateral fields of pronotum and mesonotum, 2 transverse bands on second antennal segment, thoracic pleurites except at margins, a mark on femora and 2 bands on each tibia, and abdomen, fuscous. Tegmina hyaline, veins stramineous, interruptedly fuscous.

Anal segment of male moderately long, bilaterally symmetrical, rather steeply tectiform, in dorsal view rather narrowly ovate, apical margin transverse. Pygofer short dorsally, longer than broad ventrally, laterodorsal angles distinctly and subacutely produced caudad, a small acute lobe a little below apex of each, medioventral process broad, distally truncate. Genital styles rather slender, broadest at base, tapering distad of middle, incurved so as to lie apposed at apex.

Male : length, 4·2 mm. ; tegmen, 4·0 mm. *Female*, length, 5·8 mm. ; tegmen, 4·8 mm.

Tokelau Is. : Fakaofo. Holotype and 6 ♂, 6 ♀ and 19 nymphs, 3, 25.iv.1924 (*E. H. Bryan*).

This species is distinguished by the proportions of the head and antennae and by the shape of the male genitalia. It is close to *U. samoaensis* Muir, but differs in the curvature of the apical portion of the genital styles and in the shape of the lateral margin of the pygofer.

Swains I. : Two females and a nymph are tentatively assigned to this species : the proportions of the head are as follows.

Vertex longer than broad (2·1 : 1), wider at apex than at base (1·3 : 1), frons longer than broad (1·8 : 1), second antennal segment longer than first (1·7 : 1), eye in side view longer than broad (dorsoventrally) (1·4 : 1). No nomenclatorial recognition is here given to this population, as more evidence is needed to establish its distinctness even at subspecific level.

Ugyops crotopus sp. n. (Fig. 24, A–E)

Vertex a little more than twice as long in middle line as broad at basal margin (2·1 : 1), wider at apex than at base (1·3 : 1), lateral margins straight, diverging distad, anterior margin convex with median area moderately projecting, mediolateral carinae converging distad, meeting much before apex but incompletely fused together, united by a very feeble,

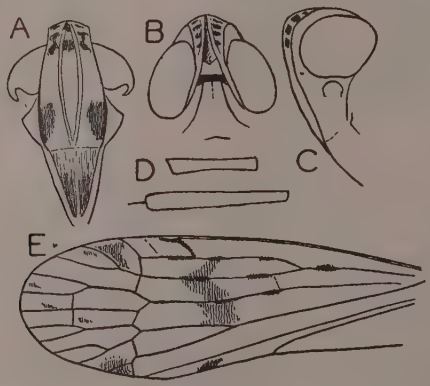

Fig. 24.—*Ugyops crotopus* sp. n. : A, frons and clypeus ; B, vertex ; C, head in profile ; D, first and second antennal segments ; E, distal portion of tegmen.

transverse carina ; frons in middle line longer than broad (nearly 2 : 1), submedian carinae separate, meeting at extreme apex ; clypeus with median carina distinct, genae in anterior view shallowly rounded below antennae, feebly inflated, ocelli obsolete, antennae long, second segment longer than first (1·6 : 1), eye in side view longer than broad (nearly 1·3 : 1).

Tegmina reaching to apex of abdomen, but not equalling apex of ovipositor, dorsal (commissural) margin in side view horizontal, *Sc* + *R* forking approximately one-quarter from base, Cu_1 forking level with union of claval veins, Wings about two-thirds as long as tegmina.

Dark testaceous or light reddish-brown, a suffusion across frons at base and apex, clypeus, genae below antennae, second antennal segment at base and apex, 3 transverse bands on protibiae and mesotibiae, postfemora and a suffusion over abdominal tergites, fuscous. Tegmina hyaline, veins stramineous, interruptedly fuscous.

Ovipositor and adjacent abdominal sclerites as figured.

Female : length, 6·8 mm. ; tegmen, 5·0 mm.

Cook Is. : Rarotonga. Holotype ♀, 20.ii.1934.

This species broadly resembles *U. leaena* (described below) and *U. oromedon*, but differs in the proportions of various structures of the head, and in the shape of the female genitalia : the lateral portions of the ninth sternum, which lie alongside the ovipositor, are markedly tumid, while the lateral portions of the eighth sternum, which overlap those of the ninth basally, are relatively broad (as wide at their widest part as a third valvula at its widest part) near the apex ; in the other 2 species the width of the lateral pieces of the eighth segment is relatively much narrower, being less than two-thirds of the maximum width of a third valvula. The specimen has also been compared with females of Samoan species, but the female genitalia showed resemblance only to one species and this differed abundantly in characters of the head.

Ugyops leaena sp. n. (Fig. 25, A–E)

Vertex twice as long in middle line as broad at basal margin, wider at apex than at base (nearly 1·4 : 1), lateral margins straight, diverging distad, anterior margin convex with median area a little projecting, mediolateral carinae converging distad, meeting much

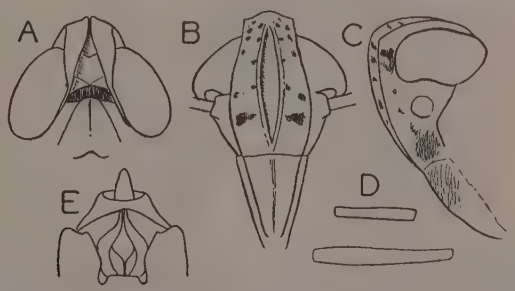

Fig. 25.—*Ugyops leaena* sp. n. : A, vertex ; B, frons and clypeus ; C, head in profile ; D, first and second antennal segments ; E, male genitalia, ventral view.

before apex but incompletely fused together, united by a very feeble, almost obsolete, transverse carina, frons in middle line longer than broad (2 : 1), submedian carinae separate, meeting at extreme apex : clypeus with median carina feebly present, genae in anterior view shallowly rounded below antennae, feebly inflated ; ocelli indicated, or present but minute ; antennae long, second segment longer than first (1·7 : 1), eye in side view longer than broad (1·4 : 1). Tegmina slightly surpassing apex of abdomen, dorsal (commissural) margin in side view horizontal, *Sc* + *R* forking approximately one-quarter from base

Cu_1 forking nearly level with union of claval veins. Wings fully developed, not quite as long as tegmina.

Testaceous-stramineous ; 2 transverse suffusions on frons, and some spots on frons and vertex, genae below antennae, second antennal segment near base and apex, a mark on femora apically, 2 transverse bands on tibiae, and a suffusion in mediobasal portion of abdomen dorsally, fuscous. Tegmina hyaline, veins stramineous, interruptedly fuscous.

Anal segment of male moderately long, bilaterally symmetrical, rather steeply tectiform, in dorsal view rather narrowly ovate, apical margin convex. Pygofer short dorsally, longer than broad ventrally, laterodorsal angles strongly produced caudad in a pair of broad lobes convex-truncate distally, a small lobe, directed caudad, arising at lower angle of each, medioventral process broad, moderately produced, distally truncate. Genital styles rather slender, broadest at base, tapering distad, incurved so as to lie apposed at apex.

Ovipositor and adjacent abdominal segments as figured.

Male : length, 4·8 mm. ; tegmen, 4·0 mm. *Female :* length, 6·0 mm. ; tegmen, 5·0 mm.

Danger Is. : Motu Katara. Holotype and 11 ♂ and 4 ♀, 1.iii.1924 (*E. H. Bryan*).

This species is distinguished by the proportions of the head and antennae and by the shape of the male genitalia, especially of the hind margin of the pygofer.

Ugyops almo sp. n. (Fig. 26, A–E)

Vertex longer in middle line than broad at basal margin (1·45 : 1), as wide at apex as at base, lateral margins straight, parallel, anterior margin convex with median area distinctly projecting, mediolateral carinae converging distad, passing separately on to frons, united by a short transverse carina ; frons in middle line longer than broad (2·4 : 1), submedian

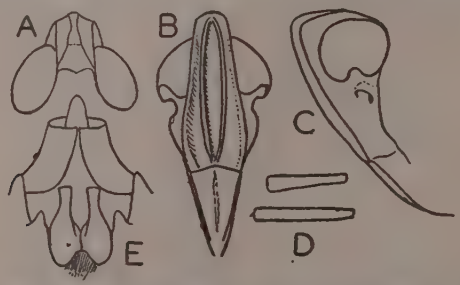

Fig. 26.—*Ugyops almo* sp. n. : A, vertex ; B, frons and clypeus ; C, head in profile ; D, first and second antennal segments ; E, male genitalia, ventral view.

carinae separate throughout, not united at apex, clypeus with median carina distinct, genae in anterior view only slightly angulate below antennae ; ocelli obsolete, antennae long, second segment longer than first (1·3 : 1) ; eye in side view longer than broad (1·3 : 1). Tegmina reaching to apex of abdomen, not surpassing it, in side view distinctly convex along hind margin of clavus, $Sc + R$ forking about one-fifth from base, Cu_1 forked near middle of corium, level with union of claval veins. Wings present, distinctly reduced, but reaching to seventh abdominal tergite.

Testaceous, tinged with dilute fuscous ; a transverse band at base of second antennal segment and a broader band at apex, fuscous ; head, pronotum and mesonotum red in

middle line and at sides. Tegmina hyaline, a small spot on Cu_1 at base and a slightly larger spot at union of claval veins fuscous.

Anal segment of male moderately long, bilaterally symmetrical, shallowly tectiform, lateral ventral margins convex, apical margin convex in profile and in ventral view. Pygofer short dorsally, about as long as broad ventrally, laterodorsal angles obtusely produced caudad, lateral margins produced at middle in a small acute lobe, medioventral process longer than broad, rounded at apex. Genital styles broad at base, narrowed and slightly incurved in distal half, weakly expanded and truncate at apex.

Male: (brachypterous) length, 5·9 mm. *Female:* (brachypterous) length, 6·9 mm.

Austral Is.: Rurutu I. Holotype and 2 ♂ and 7♀, Mt. Manureva, south-west slope, 1000 feet, 25.viii.1934 (*D. Anderson*); Mt. Teape, south slope, 700 feet, 2.ix.1934 (*E. C. Zimmerman*).

Raivavae I.: One ♀, Mt. Muanui, 500–800 feet, 8.viii.1934, on shrubs (*E. C. Zimmerman*).

Rimatara I.: Two ♂ and 1 ♀, Maraitere, 25 feet, 5.ix.1934, on grasses and herbage (*E. C. Zimmernam*); Amaru, 25 feet, 5.ix.1934 (*E. C. Zimmerman*); Oromana Hills, 250 feet, on grasses and herbage (*E. C. Zimmernam*).

This species is distinguished by the proportions of the head and antennae and by the shape of the male genitalia. It is close to *U. haliacmon*, described below, from which it is readily separable by the proportions of the eye as viewed from the side.

Ugyops haliacmon sp. n. (Fig. 27, A–E)

Vertex longer in middle line than broad at basal margin (1·7 : 1), little if at all wider at apex than at base, lateral margins straight, parallel or nearly so, anterior margin convex with median area not interrupting the curve, mediolateral carinae converging distad, passing separately on to frons, united by a short V-shaped carina; frons in middle line

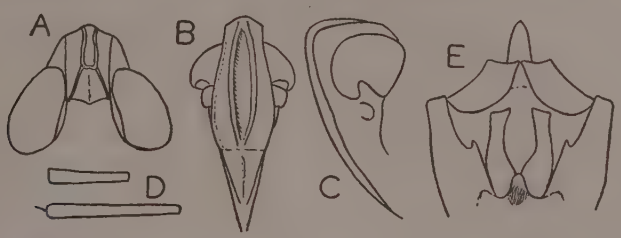

Fig. 27.—*Ugyops haliacmon* sp. n.: A, vertex; B, frons and clypeus; C, head in profile; D, first and second antennal segments; E, male genitalia, ventral view.

longer than broad (2·2 : 1), submedian carinae separate throughout, not united at apex; clypeus with median carina distinct, genae in anterior view only slightly angulate below antennae; ocelli obsolete, antennae long, second segment longer than first (1·6 : 1), eye in side view longer than broad (1·6 : 1). Tegmina a little surpassing apex of abdomen, $Sc + R$ forked one-quarter from base, Cu_1 forked at middle of corium, slightly distad of level of union of claval veins. Wings present, well developed, pale stramineous; head, a band round second antennal segment distally, pronotum and mesonotum, dark testaceous or dilute fuscous, sometimes suffused with red along middle line and at sides. Tegmina hyaline, veins dark testaceous.

Anal segment of male rather short, bilaterally symmetrical, shallowly tectiform, lateral ventral margins convex, apex in profile and in ventral view acute. Pygofer short dorsally, longer than broad ventrally, laterodorsal angles moderately produced caudad, subacutely angulate, lateral margins produced caudad at middle in a small acute lobe, medioventral process longer than broad, rounded at apex. Genital styles broad at base, narrowed and parallel-sided in posterior view in distal half, slightly expanded and abruptly truncate at apex.

Male : length, 5·7 mm. ; tegmen, 4·5 mm.

Society Is. : Bora Bora. Holotype ♂, Mt. Pahio, 600–800 feet, west slope, 13.x.1934 (*E. C. Zimmerman*).

This species is distinguished by the proportions of the head and antennae and by the shape of the male genitalia.

Moorea : One ♀, Tepatu Valley, 800 feet, 27.ix.1934, on *Asplenium nidus* (*E. C. Zimmerman*). The assignment of this specimen to *U. haliacmon* must remain tentative until a male can be examined.

Subfamily Delphacinae

Tribe Alohini

The genera of Alohini are approximately equally divided in numbers between those occurring in the Hawaiian Islands and those occurring elsewhere. The latter group comprises a few genera, morphologically well separated from each other, sparsely distributed around the world, while the former comprises a basal stratum of " original " genera and a series of apparent derivatives which have risen from lower categories to generic rank. Of these apparently secondary genera, *Nesothoë* and *Dictyophorodelphax* have each been erected to accommodate a natural group of species ; two others, *Nesorestias* and *Nothorestias*, appear to be pigeon-holes for the products of convergent evolution in the direction of brachyptery. In the present collection there are some two dozen species of Alohini : Zimmerman (1948, *Insects of Hawaii* **4** : 173) noted that " some of them evidently belong to *Nesosydne*, perhaps some will be found to be representatives of other Hawaiian genera, and others are localised offshoots which probably will be described as distinct new genera ".

The question whether a Hawaiian genus occurs elsewhere largely depends for its answer on the characters by which the genus is defined. The genus *Leialoha*, for example, includes Alohini with two carinae on the frons and a short first antennal segment : the Hawaiian species also share the character of a slender tubular aedeagus deflexed distally and with a process at the side. The last character has not been used to define the genus, but genital characters have been used to separate *Nesothoë* from *Nesodryas*. If head characters only are used to define *Leialoha*, the genus is represented in south-east Polynesia ; if the definition were made to include the shape of the aedeagus, then *Leialoha* could not yet be recorded in this area, and a new genus would be required for the corresponding form.

The available evidence suggests that the number of distinct original immigrant alohine species which reached the Hawaiian Islands was small. These immigrants would have generic characters and specific characters, and as in other Delphacids, the specific characters would include the shape of male genitalic structures, while generic characters would be found on the head and

thorax. Morphological differentiation of populations resulting from the successful establishment of an immigrant species might be expected to result in variations on a genitalic pattern, as found in *Leialoha*. If, now, it is assumed that a second species of the original genus invaded an island in south-east Polynesia, and not in Hawaii, it would be reasonable to expect a natural group to develop with many similar characters but a different genitalic pattern, since the two original species would normally differ in this character. The writer sees little practical value at present in recognising small SE. Polynesian alohine species-groups as full genera, both on account of the fact that true fundamental relationships are apt to be obscured by such action, and of the fact that species which do not fit into a compact group would also logically require recognition as separate genera. Such a procedure applied to a genus like *Nesosydne* would not be calculated to promote clarity.

By selecting three pairs of characters—a frons with one or two carinae, a first antennal segment short or long, and tegmina as broad as long or longer than broad—it is possible to divide the present material, with the exception of a single species, between the Hawaiian genera *Aloha*, *Leialoha*, *Nesosydne*, *Nothorestias* and *Nesodryas*. There is, however, little doubt that the species which would run automatically to *Nothorestias* are not of common stock, and very probably no more closely allied to Hawaiian *Nothorestias* than they are to *Nesosydne*.

The writer accordingly proposes here to recognise only four genera, and to indicate affinity within the genus by a tabulation of species-groups at the end of the section on this tribe.

Key to Genera of Alohini in South-east Polynesia

1		First segment of antennae distinctly longer than broad . . . 2
–		First segment of antennae not distinctly longer than broad . . 3
2	(1)	Frons with a pair of submedian carinae, or 2 carinae closely apposed in middle line but not fused together . . **Aloha** Kirkaldy
–		Frons with a single median carina, at least in distal half **Nesosydne** Kirkaldy
3	(1)	Frons with a pair of submedian carinae, or 2 carinae closely apposed in middle line but not fused together . **Leialoha** Kirkaldy
–		Frons with a single median carina, at least in distal half **Nesodryas** Kirkaldy

Genus *Nesosydne* Kirkaldy

Kirkaldy, 1907, *Proc. Hawaii. ent. Soc.* **1** : 161. Orthotype, *Nesosydne koae* Kirkaldy, 1907, *loc. cit.*

Nesosydne remmius sp. n. (Fig. 28, A–I)

Vertex longer in middle line than broad across base (1·7 : 1), subrectangulately meeting frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin feebly convex with median carina projecting, Y-shaped carina almost obsolete, distinct only in basal half, submedian carinae uniting at apex of vertex; frons longer in middle line than broad (1·6 : 1), widest at middle, lateral margins convex, disc only slightly hollowed out longitudinally near lateral margins, median carina simple, moderately elevated above level of disc; antennae reaching to level of middle of clypeus, basal segment longer than broad (1·6 : 1), second segment longer than first (1·6 : 1). Pronotum with

disc broader at base than long in middle line (1·5 : 1), lateral carinae straight, diverging caudad, attaining hind margin. Post-tibial spur with 8 teeth. Tegmina brachypterous, not attaining apex of abdomen, rather deeply rounded apically, margin very broad, venation regular, $Sc + R$ forked approximately two-thirds from base, M simple, Cu_1 forked near middle, Cu_2 and claval suture absent, each claval vein separately much longer than common stalk. Wings absent.

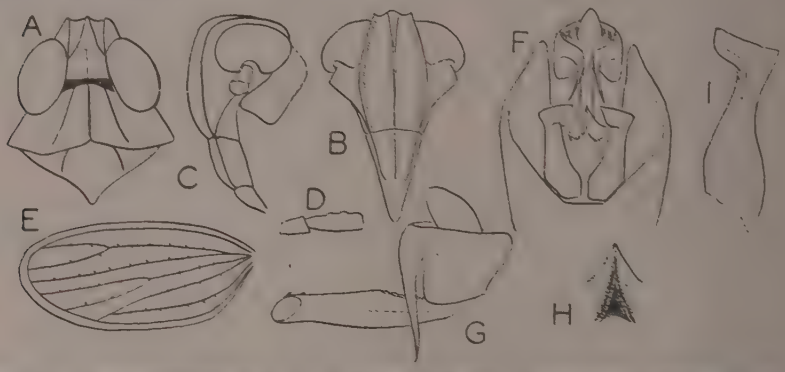

FIG. 28.—*Nesosydne remmius* sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment and aedeagus; H, armature of diaphragm; I, genital style.

Uniformly stramineous. Tegmina hyaline, distinctly tinged yellow, veins concolorous. Anal segment of male short, ring-like, each latero-apical angle strongly produced ventrad in a slender spinose process. Pygofer with posterior opening approximately as long as broad, laterodorsal angles distinctly produced caudad, not inflected, diaphragm with dorsal margin concave, median portion strongly produced caudad in a vertical wedge-shaped process. Aedeagus short, tubular, porrect caudad, orifice terminal on left, oblique. Genital styles moderately long, moderately broad at base, narrowing distally, abruptly subrectangulately bent mesad in distal quarter, apical margin oblique.

Male: length, 2·9 mm.

SOCIETY IS.: Moorea. Holotype ♂, Mt. Teaharua, north ridge, 1500–2000 feet, 25.ix.1934 (*E. C. Zimmerman*).

This species is distinguished by the proportions of the head, by coloration and by the shape of the male genitalia.

Nesosydne scorpinaca sp. n. (Fig. 29, A–H)

Vertex as long in middle as broad at base, rounding subangulately into frons, a little narrower at apex than at base (1 : 1·3), posterior margin transverse, lateral margins feebly converging distad, apical margin transverse with median carina projecting, Y-shaped carina distinct, submedian carinae meeting at apex of vertex; frons in middle line longer than broad (2 : 1), widest two-thirds from base, lateral margins convex, disc not hollowed out longitudinally near lateral margins, median carina simple, distinctly elevated above level of disc; antennae reaching to level of apex of clypeus, basal segment twice as long as broad, second segment longer than first (1·3 : 1). Pronotum with disc twice as broad at base as long in middle line, lateral carinae straight or feebly concave, diverging basad, weakly attaining hind margin, median carina of pronotum and of mesonotum sharp and

distinctly elevated. Post-tibial spur rather long, with 10 or 11 teeth. Tegmina brachypterous, scarcely overlapping base of abdomen, about as broad as long, apical margin truncate, oblique; venation much reduced but quite distinct, as figured. Wings absent.

Testaceous-stramineous; head, pronotum, and to a lesser degree mesonotum tinged light reddish-brown. Tegmina yellowish-hyaline, veins concolorous. Colour of female testaceous shading ventrally to dilute fuscous, abdominal tergites yellow. Tegmina as in male.

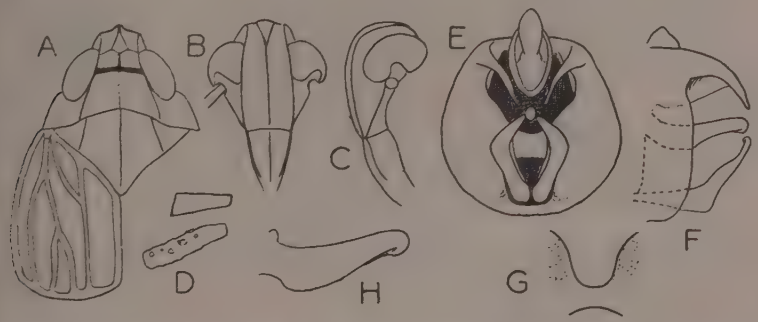

FIG. 29.—*Nesosydne scorpinaca* sp. n.: A, head, thorax and left tegmen; B, frons and clypeus; C, head in profile; D, first and second antennal segments; E, male genitalia, posterior view; F, male genitalia, side view; G, median portion of diaphragm; H, aedeagus, left side.

Anal segment of male short, ring-like, apical margin convex, lateroapical angles not distinct, not at all produced. Pygofer with posterior opening longer dorsoventrally than broad, laterodorsal angles each strongly produced mesoventrad in a long, stout, slightly angulate spinose process; diaphragm with dorsal margin convex laterally, semicircularly concave mesally, totally devoid of sclerotic armature. Aedeagus short, curved in basal half, narrow and porrect in distal half, rounded at apex, deeply pigmented, devoid of teeth or processes. Genital styles moderately long, slender, broadest at base, sinuately tapering distad to incurved apex.

Female of same general appearance as male.

Male (brachypterous): length, 3·3 mm. *Female* (brachypterous): length, 3·4 mm.

SOCIETY IS.: Tahiti. Holotype ♂ and 1 ♀, Mt. Aorai Trail, 5500–6300 feet, 15.ix.1934 (*E. C. Zimmerman*).

This species is distinguished by bodily proportions, by coloration, and by structure of the male genitalia.

Nesosydne soracte sp. n. (Fig. 30, A–I)

Vertex longer in middle line than broad at base (1·25 : 1), subacutely rounding into frons, posterior margin transverse, lateral margins parallel, anterior margin convex with median carina projecting, Y-shaped carina obsolete, submedian carinae uniting just as they curve into frons; frons longer in middle line than broad (2·7 : 1), widest just distad of middle, lateral margins shallowly convex, disc markedly hollowed out longitudinally on each side of middle line, median carina simple; antennae reaching to level of middle of clypeus, basal segment distinctly longer than broad, second segment longer than first (1·7 : 1). Pronotum with lateral carinae of disc straight, diverging caudad, attaining hind margin. Post-tibial spur with 7 teeth. Tegmina surpassing abdomen, deeply rounded

apically, $Sc + R$ forked very near apical margin, M simple, Cu_1 forked just basad of claval apex, claval suture obsolete. Wings absent.

Testaceous; intercarinal areas of frons, second segment of antennae, and small clouds on upper and lower surfaces of abdomen dilute fuscous. Tegmina hyaline, faintly tinged yellow, a short stripe in M distally, and a linear spot in middle of hind margin, fuscous.

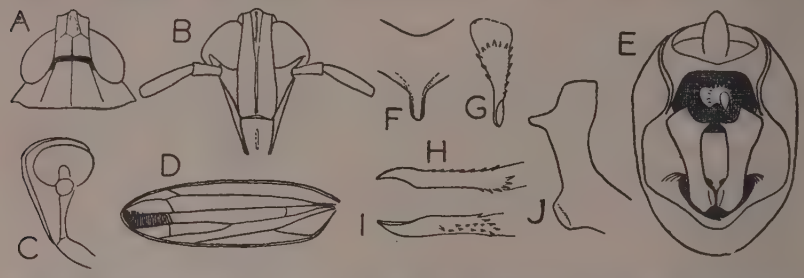

FIG. 30.—*Nesosydne soracte* sp. n.: A, vertex and pronotum; B, frons, clypeus, and antennae; C, head in profile; D, tegmen; E, male genitalia, posterior view; F, armature of diaphragm; G, aedeagus, posterodorsal view; H, aedeagus, dorsal view; I, ventral view; J, genital style.

Anal segment of male short, narrowly ring-like, apical margin narrow, transverse, long, each lateroapical angle shortly produced ventrocephalad in a short stout curved spine. Pygofer with opening longer dorsoventrally than broad, laterodorsal angles inflected but not produced, diaphragm broad, with dorsal margin concave, transverse and unarmed at middle. Aedeagus narrowly tubular, little dilated at apex, a very oblique ring of minute teeth encircling aedeagus from middle of dorsal margin to ventral margin at apex, about 13 teeth on right side, rather fewer on left, orifice terminal, oblique, opening facing dorsocaudad. Genital styles as figured.

Male: length, 3·0 mm.; tegmen 3·0 mm.

RAPA I.: Holotype ♂, Mt. Perahu, 1200–1400 feet, north-east ridge, 15.vii.1934 (*E. C. Zimmerman*).

This species is distinguished by the shape of the head, by coloration, and by structure of the male genitalia.

Nesosydne sophonisba sp. n. (Fig. 31, A–J)

Vertex longer in middle line than broad (1·6 : 1), rounding distally into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina projecting, Y-shaped carina feebly present, submedian carinae prominent, uniting before apex of vertex; frons longer in middle line than broad (1·8 : 1), widest two-thirds from base, lateral margins sinuately convex, disc only feebly hollowed out longitudinally near lateral margins, median carina simple, elevated; antennae reaching to level of middle of clypeus, basal segment twice as long as broad, second segment twice as long as first. Pronotum with disc broader at base than long (1·4 : 1), lateral carinae of disc concave, attaining hind margin. Post-tibial spur with 5 teeth. Tegmina slightly surpassing abdomen, acutely rounded apically, $Sc + R$ simple to apex, M simple, Cu_1 forked. Wings absent.

Pale stramineous; head and antennae lightly suffused reddish-brown, spines on hind legs, and all tarsal claws, piceous. Tegmina hyaline, veins yellowish, inner margin of clavus, and sometimes an oblique suffusion between middle of tegmen and fork of Cu_1 and

claval margin at this level, a suffusion over cross veins of nodal line and a spot at apical margin in cell Cu_{1a}, castaneous.

Anal segment of male short, ring-like, each latero-apical angle produced ventrally in a stout curved tubular process. Pygofer with posterior opening broader than long dorso-ventrally, laterodorsal angles not produced, posterior lateral margins strongly convex, diaphragm broad, with dorsal margin transverse at middle, devoid of armature, ventral, margin at middle produced caudad in a triangulate-conical lobe. Aedeagus short, tubular, a row of about 8 teeth in a sinuate line on each side, orifice terminal. Genital styles relatively short and broad, as figured.

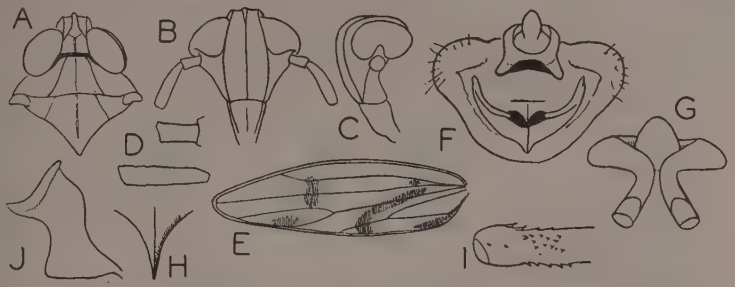

Fig. 31.—*Nesosydne sophonisba* sp. n.: A, head and thorax; B, head, anterior view; C, head in profile; D, first and second antennal segments; E, tegmen; F, male genitalia, posterior view; G, anal segment of male, posterior view; H, armature of diaphragm; I, aedeagus, right side; J, genital style.

Female of same general appearance as male, sometimes with tegminal markings faint except at base.

Male: length, 3·0 mm.; tegmen, 2·7 mm. *Female:* length, 3·1 mm.; tegmen, 3·0 mm.

Rapa I.: Holotype and 10 ♂ and 41 ♀, Mt. Tepiahu, south slope, 400–600 feet, 20.vii.1934, on *Fitchia* and *Asplenium nidus* (*E. C. Zimmerman*); Mangaoa Peak, north-east ridge, on *Eurya*; 1000–1200 feet, 6, 25.vii.1934, on *Eurya*; Mt. Teraitahu, north-east slope, 400–800 feet, 8, 9, 16, vii.1934, beating *Fitchia* (*E. C. Zimmerman*); Mt. Perahu, north-east and south-east ridges, 1000–1400 feet, 15, 20.vii.1934, on *Fitchia* (*E. C. Zimmerman*); Mt. Tanga, 700–800 feet, 23.vii.1934, beating *Lautea* (*E. C. Zimmerman*); Morongota, 700–800 feet, 11.vii.1934 (*E. C. Zimmerman*); Mt. Tautautu, north-west slope, 700–800 feet, 9.vii.1934; Mt. Ororangi, south-east valley, 3.vii.1934, beating *Piper* (*E. C. Zimmerman*); 600–700 feet, beating ferns; Karapo Rahi Islet, 100–300 feet, 18.vii.1934, on *Fitchia* (*E. C. Zimmerman*); Mt. Vairu, 1100 feet, 12.vii.1934 (*E. C. Zimmerman*). Holotype from Mt. Tepiahu.

This species is distinguished by the proportions of the head, by coloration and by the structure of the male genitalia.

Nesosydne satyrion sp. n. (Fig. 32, A–J)

Vertex longer in middle line than broad (1·4 : 1), rounding distally into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina projecting, Y-shaped carina distinctly present, submedian carinae distinct, uniting at apex; frons longer in middle line than broad (2 : 1), widest two-thirds

from base, lateral margins sinuately convex, disc only feebly hollowed out longitudinally near lateral margins, median carina simple, elevated; antennae reaching to level of base of clypeus, basal segment longer than broad (2 : 1), second segment longer than first (nearly 1·6 : 1). Pronotum with disc twice as broad at base as long in middle, lateral carinae of disc concave, curving laterad basally, not attaining hind margin. Post-tibial spur with 6 teeth. Tegmina moderately surpassing abdomen, deeply convex apically, $Sc + R$ simple, M simple, Cu_1 forked near middle, claval suture and vein Cu_2 absent, each claval vein separately about equal to common stem. Wings absent.

Stramineous; clypeus pallid, almost ivory, frons piceous apically, castaneous latero-distally, intercarinal areas basally reddish-brown, vertex with intercarinal areas reddish-

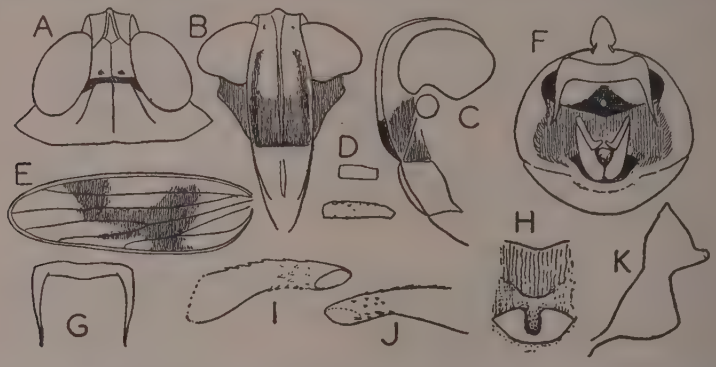

Fig. 32.—*Nesosydne satyrion* sp. n.: A, vertex and pronotum B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, posterior margin of anal segment of male; H, armature, of diaphragm; I, aedeagus, left side; J, aedeagus, right side; K, genital style.

brown; sides of head before and above eyes, and antennae, reddish-brown; sides of head below level of antennae castaneous-fuscous; abdomen sometimes infuscate dorsally on each side of middle line. Tegmina hyaline, sometimes entirely devoid of colour; at most with a V-shaped suffusion from costal margin at basal third to posterior margin a little basad of middle, then obliquely to anterior margin at node.

Anal segment of male large and broad, ring-like, apical margin rather broadly transverse, latero-apical angles each strongly produced ventrolaterad in a slender spine. Pygofer with posterior opening rather broader than long dorsoventrally, lateral hind margins moderately convexly produced caudad, diaphragm with dorsal margin shallowly angulately excavate, pigmented but not sclerotised medially, ventral margin strongly produced caudad at middle in a short porrect process. Aedeagus short, tubular, slightly decurved distad, orifice on right at apex, a tract of about 15 teeth on right side distally, a little basad of orifice, a row of about 7 teeth along upper margin slightly to left. Genital styles moderately large, relatively broad, as figured.

Female of same general appearance as male, sometimes with more bleached colouring.

Male: length, 2·8 mm.; tegmen, 2·8 mm. *Female*, length 3·6 mm.; tegmen, 3·0 mm.

Rapa I.: Holotype and 15 ♂, and 22 ♀. Mangaoa Peak, north-east ridge, 900–1200 feet, 4, 6, 24.vii.1934, on shrubs (*E. C. Zimmerman*); Mt. Tevaitahu, north-east slope, 700–800 feet, 8.vii.1934 (*E. C. Zimmerman*); Mt. Vairu, 1100 feet, 11, 12.vii.1934 (*E. C. Zimmerman*); Mt. Tautautu, north-west slope, 700–800 feet, 9.vii.1934 on shrubs (*E. C. Zimmerman*); Mt. Perahu, east

ridge, 1200–1400 feet, 15, 21.vii.1934, on *Coprosma*; Maitua, 400–600 feet, 10.vii.1934 (*E. C. Zimmerman*). Holotype from Mangaoa Pk.

This species is distinguished by the proportions of the frons, by the shape of the male genitalia, especially of the aedeagus, and by coloration.

Nesosydne panthus sp. n. (Fig. 33, A–I)

Vertex longer in middle line than broad at base (1·4 : 1), rounding distally into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina projecting. Y-shaped carina feebly present, submedian carinae uniting at apex of vertex; frons longer in middle line than broad (2·7 : 1), widest two-thirds from base, lateral margins shallowly convex, disc only feebly hollowed out longitudinally near lateral margins, median carina simple, elevated; antennae reaching

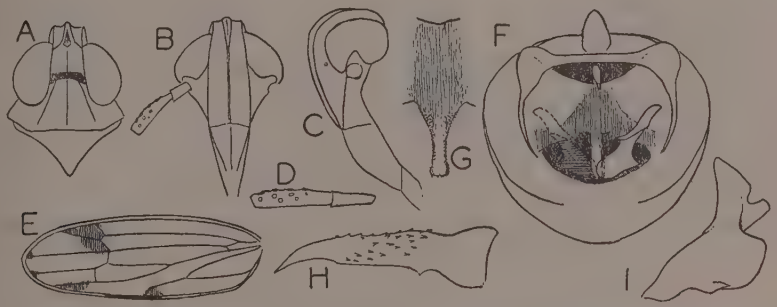

Fig. 33.—*Nesosydne panthus* sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, antenna; E, tegmen; F, male genitalia, posterior view; G, armature of diaphragm; H, aedeagus, right side; I, genital style.

almost to level of apex of clypeus, basal segment twice as long as broad, second segment 1·9 times as long as first. Pronotum with disc scarcely broader than long, lateral carinae straight, diverging caudad, attaining hind margin. Post-tibial spur with 8 teeth. Tegmina slightly surpassing apex of abdomen, deeply rounded apically, $Sc + R$ forked at nodal line, M simple, Cu_1 forked near middle of tegmen, vein Cu_2 and claval suture absent, each claval vein separately longer than common stalk. Wings absent.

Stramineous; head and antennae light reddish-brown. Tegmina hyaline, veins pallid, a suffusion near middle of posterior margin, a spot in apical cell Sc, a small spot on M and Cu_{1a} at apical margin, and a spot just posterior to Cu_{1b} at margin, fuscous.

Anal segment of male short, broader than long, ring-like, with apical margin transverse, broad, latero-apical angles widely separated, each strongly produced ventrad in a long, slender, shallowly-curved spinose process. Pygofer with posterior opening broader than long, lateral margins weakly convexly produced caudad, diaphragm broad, dorsal margin shallowly concave, pigmented at middle but devoid of armature; ventral margin strongly produced caudad at middle in a porrect rod-like process. Aedeagus moderately long, laterally compressed, slightly bulbous at base, straight for most of its length, slightly decurved at apex, an oblique tract of minute teeth occupying most of dorsal margin and extending ventrocaudad to lower margin near orifice, which opens distally on right. Genital styles relatively short and broad, as figured.

Male: length, 3·3 mm.

Rapa I.: Holotype and 1 ♂, Karapo Rahi Islet, 100–300 feet, 18.vii.1934 (*E. C. Zimmerman*); Morongota, 700–800 feet, 11.vii.1934 (*E. C. Zimmerman*). Holotype from Karapo Rahi Islet.

This species is distinguished by the proportions of the frons, by the structure of the male genitalia, especially of the aedeagus, and by coloration. It is obviously close to *N. otus* (described below), but differs in the shape of the aedeagus and of the genital styles.

Nesosydne otus sp. n. (Fig. 34, A–I)

Vertex longer in middle line than broad (1·6 : 1), distally rounding into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina projecting, Y-shaped carina feebly present, submedian carinae distinct, united at apex of vertex; frons longer in middle line than broad (2·6 : 1), widest distad of middle, lateral margins feebly convex, disc shallowly hollowed out longitudinally near lateral margins, median carina simple, elevated; antennae reaching to level of middle of clypeus, basal segment slightly more than twice as long as broad, second segment 1·7 times as long as first. Pronotum with disc broader at base than long in middle (1·7 : 1), lateral margins of disc straight, diverging caudad, weakly attaining hind margin. Post-tibial spur with 8 teeth.

Tegmina moderately surpassing abdomen, deeply convex apically. $Sc + R$ simple or forked, M simple, Cu_1 forked at middle of tegmen, Cu_2 and claval suture absent or weak, each claval vein separately shorter than common stem. Wings absent.

Stramineous; head lightly tinged reddish-brown. Tegmina hyaline, faintly yellowish, a fuscous band in cell M from base to apex; in female this band is pale or absent.

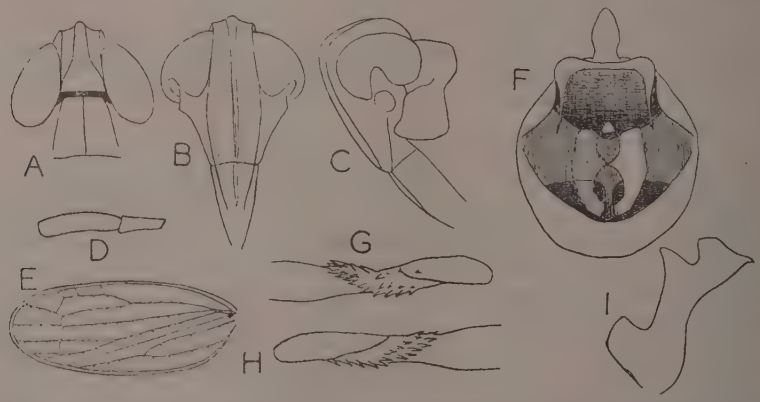

Fig. 34.—*Nesosydne otus* sp. n.: A, vertex and disc of pronotum; B, frons and clypeus; C, head in profile; D, antenna; E, tegmen; F, male genitalia, posterior view; G, aedeagus, left side; H, aedeagus, right side; I, genital style.

Anal segment of male large and broad, ring-like, apical margin broadly transverse, lateroapical angles each strongly produced ventrolaterad in a long slender spine. Pygofer with posterior opening rather broader than long dorsoventrally, laterodorsal angles not produced, feebly inflected mesad, lateral posterior margins convexly produced caudad, diaphragm with dorsal margin shallowly concave, not sclerotised medially, ventral margin strongly produced caudad at middle in a short porrect process, knob-like at apex. Aedeagus

moderately long and slender, tubular, porrect caudad, orifice terminal, a very oblique collar of minute teeth from dorsal margin at one-third from base to ventral margin about one-third from apex; orifice on right at apex. Genital styles moderately large, relatively broad, as figured.

Female of same general appearance as male.

Male: length, 2·2 mm.; tegmen, 2·1 mm. *Female*, length, 4·0 mm.; tegmen 3·5 mm.

Rapa: Holotype and 18 ♂ and 8 ♀, Karapo Rahi Islet, 100–300 feet, 18.vii.1934, on *Fitchia*; Mangaoa Peak, north-east ridge, 1000–1200 feet, 6.vii.1934,; Mt. Perahu, east ridge, 1200–1500 feet, 21.vii.1934 on *Veronica*; Morongota, 700–800 feet, 11.vii.1937 on *Veronica*; Mt. Tevaitahu, north-east slope, 700–800 feet, 8.vii.1934, Mt. Ororangi, south-east valley, 600–700 feet, 3.vii.1934 on ferns. (All *E. C. Zimmerman*). Holotype from Karapo Rahi Islet.

This species is distinguished by the proportions of the frons and the shape of the aedeagus, and by coloration.

Nesosydne ozomene sp. n. (Fig. 35, A–J)

Vertex as long in middle as broad at base, rounding obtusely into frons, slightly narrower at apex than at base, posterior margin transverse, lateral margins straight, weakly converging distad, apical margin transverse with median carina projecting, Y-shaped carina feeble, almost obsolete, submedian carinae prominent, uniting at apex of vertex; frons longer

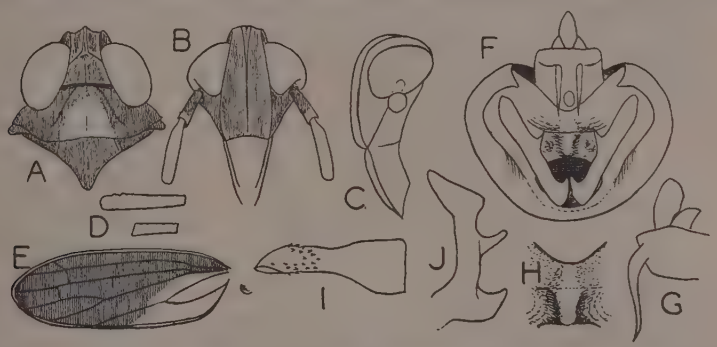

Fig. 35.—*Nesosydne ozomene* sp. n.: A, head and thorax; B, head, anterior view; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment of male; H, armature of diaphragm; I, aedeagus, right side; J, genital style.

in middle line than broad (2 : 1), widest just distad of middle, lateral margins shallowly convex, disc only feebly hollowed out longitudinally near lateral margins, median carina simple, elevated; antennae reaching to level of middle of clypeus, basal segment 2·1 times as long as broad, second segment 1·6 times as long as first. Pronotum with disc 1·5 times as broad at base as long in middle, lateral carinae feebly convex, attaining hind margin. Post-tibial spur with 7 or 8 teeth. Tegmina slightly surpassing apex of abdomen, $Sc + R$ simple, M simple, Cu_1 forked two-thirds from base, Cu_2 and claval suture absent, each claval vein shorter than common stalk. Wings absent.

Dark castaneous; clypeus, second segment of antennae, legs, abdomen at base dorsally, and posterolaterally ventrally, pallid stramineous; basal segment of antennae fuscous. Tegmina dark castaneous, clavus hyaline, colourless, veins concolorous.

Anal segment of male short, ring-like, with apical margin narrow, latero-apical angles not widely separated, each produced ventrad in a moderately long straight spinose process. Pygofer with posterior opening about as broad as long dorsoventrally, laterodorsal angles not produced, inflected mesad, posterior lateral margins moderately produced caudad in a convex lobe; diaphragm with dorsal margin shallowly concave, ventral margin produced caudad at middle in a short stout process. Aedeagus rather short, tubular, narrowed in distal two-thirds, weakly decurved at apex, orifice terminal, facing ventrally, a collar of about 18 small teeth encircling aedeagus just distad of middle. Genital styles moderately long, shaped as figured.

Male: length, 2·3 mm.; tegmen, 2·0 mm.

RAPA I.: Holotype and 15 ♂. Maitua, 700–800 feet, 2.vii.1934 (*E. C. Zimmerman*).

This species is distinguished by the proportions of the head, and by coloration and shape of the male genitalia.

Nesosydne cheesmanae (Muir) (*nom. emend.* for *Ilburnia cheesmanai* Muir) (Fig. 36, A–H)

Ilburnia cheesmani Muir, 1927, *Ann. Mag. nat. Hist.* (9) **20**: 87.

"Vertex wider than long, the median carina of base of frons projecting, making apex angular; median carina of frons simple. Antennae reaching to apex of clypeus, first and second segments subequal in length. Tegmina coriaceous with irregular reticulated surface. Spur cultrate, thick, hind margin bearing stout spines.

"Brown, slightly lighter over frons, clypeus, legs and ventral surface; dorsum of abdomen with a few light marks."

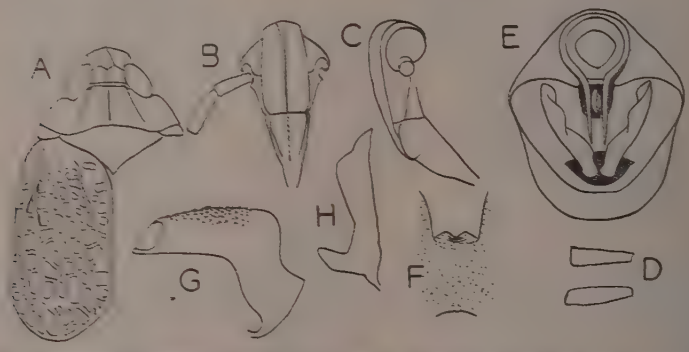

FIG. 36.—*Nesosydne cheesmanae* (Muir): A, head, thorax and left tegmen, dorsal view; B, head, anterior view; C, head in profile; D, first and second segments of antenna; E, male genitalia, posterior view; F, armature of diaphragm; G, aedeagus, right side; H, genital style.

Anal segment of male short, ring-like, apical margin short, latero-apical angles each strongly produced ventrad in a long laterally-compressed blade-like process. Pygofer with posterior opening about as broad as long dorsoventrally, laterodorsal angles strongly produced, inflected mesad; diaphragm with dorsal margin almost quadrately excavate a pair of small heavily pigmented convex lobes at middle. Aedeagus rather short, tubular laterally compressed, strongly sinuate in its basal half, porrect in distal half, apical margi

oblique, orifice terminal on right; a tract of minute teeth along dorsal surface in distal half. Genital styles moderately long, as figured.

Female of same general appearance as male, with darker coloration.

Male (brachypterous): length, 4·0 mm. *Female* (brachypterous): length, 5·0 mm.

MARQUESAS Is.: Hiva Oa. One ♂ and one ♀, Feani summit, 3900 feet, 21.i.1932 in moss (*Le Bronnec*); Temetiu summit, 4160 feet, 20.i.1932, on *Weinmannia* (*Le Bronnec*).

This species is distinguished by the proportions of the head, coloration, and shape of the male genitalia. The type is a female, but the species cannot be confused with any discussed elsewhere in this report.

Nesosydne cyane sp. n. (Fig. 37, A–J)

Vertex as broad at base as long in middle line, rounding obtusely into frons, as wide at apex as at base, posterior margin transverse, lateral margins shallowly concave, apical margin convex with median carina not or only feebly projecting, Y-shaped carina distinct, submedian carinae uniting at apex; frons longer in middle line than broad (2·2 : 1), widest at middle, lateral margins shallowly convex, disc hollowed out longitudinally on each side of middle line, median carina simple, broadening at base; antennae reaching almost to

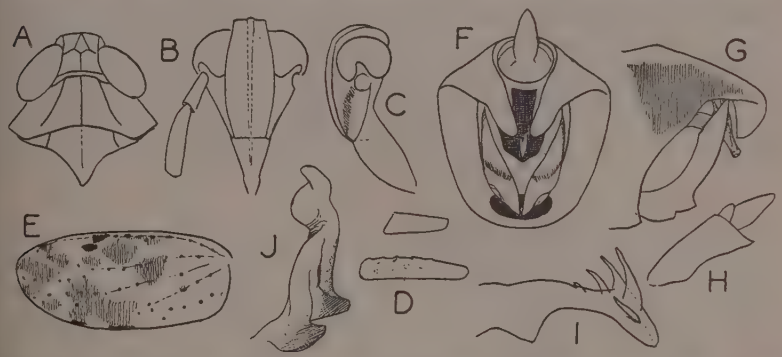

FIG. 37.—*Nesosydne cyane* sp. n.: A, head and thorax; B, head, anterior view; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, male genitalia, side view; H, anal segment of male; I, aedeagus, left side; J, genital style.

apex of clypeus, basal segment distinctly longer than broad, second segment about 1·9 times as long as first. Pronotum with lateral carinae of disc straight, diverging caudad, not attaining hind margin. Post-tibial spur with 7 teeth. Tegmina not quite reaching to apex of abdomen, rather deeply rounded apically, $Sc + R$ forked two-thirds from base, M forked at nodal line, Cu_1 forked nearly level with union of claval veins, claval suture absent but vein Cu_2 present. Wings absent.

Fuscous; medio-distal area of frontal disc, and 4 spots near each lateral margin, carinae of pronotum, and lower margin of lateral lobes, rostrum, legs except for a suffusion on femora and 2 transverse bars on tibiae and tarsi at base, and seventh, eighth and ninth tergites of male in middle line, stramineous. Tegmina hyaline, veins pallid or concolorous, with coarse brown granules; a diffuse cloud near base, an irregular oblique mottling from costal margin one-third from base to commissural margin at middle, and an oblique darker suffusion from middle of commissural margin to apical angle, fuscous.

Anal segment of male short, narrowly ring-like, apical margin narrow, transverse, latero-apical angles not produced. Pygofer with posterior opening longer dorsoventrally than broad, laterodorsal angles exceptionally strongly produced caudad, tapering distad, narrow and strongly deflexed at apex; diaphragm with dorsal margin concave, devoid of any armature at middle. Aedeagus narrowly tubular, ventral margin in side view angulately produced near middle, 2 stout spinose processes dorsally on left and 3 such processes dorsally on right at apex, directed dorsocephalad, apex of aedeagus moderately deflexed. Genital styles as figured, moderately long, of approximately same width throughout.

Female similar to male in general appearance.

Male (brachypterous): length, 3·7 mm. *Female* (brachypterous): length, 4·2 mm.

Marquesas Is.: Hiva Oa. Holotype and 3 ♂ and 6 ♀, Kakahopuanui, Kaava Ridge, 2800 feet, 27.x.1937, on *Reynoldsia*, *Weinmannia*, *Glochidion ramiflorum*, *Loranthus*, and *Cyrtandra* (*Le Bronnec*).

This species is distinguished by the shape of the head, by coloration, and by structural details of the male genitalia.

Nesosydne clitarchus sp. n. (Fig. 38, A–J)

Vertex a little broader at base than long in middle line (about 1·2 : 1), curving evenly into frons distally, posterior margin transverse, lateral margins concave, anterior margin obsolete, Y-shaped carina present, small, submedian carinae passing separately on to frons; frons longer in middle line than broad (1·7 : 1), widest at middle, lateral margins convex, disc transversely distinctly convex, fork of median carina about one-third from base; antennae reaching to level of middle of clypeus, basal segment distinctly longer than broad, second segment longer than first (1·9 : 1). Pronotum with lateral carinae of disc curved laterad, not quite attaining hind margin. Post-tibial spur with 8 or 9 teeth. Tegmina brachypterous, coriaceous, venation forming a rather irregular reticulum.

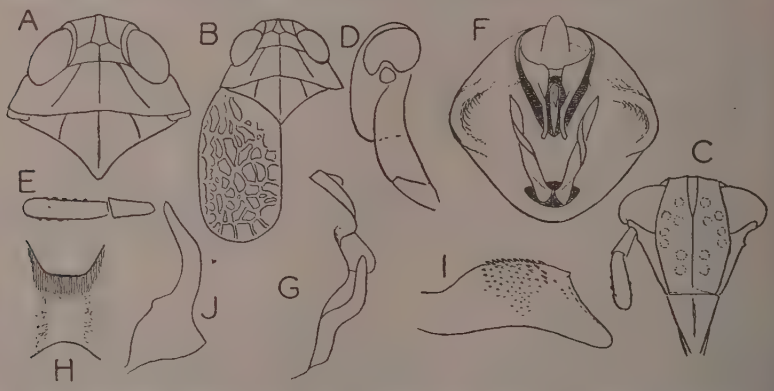

Fig. 38.—*Nesosydne clitarchus* sp. n.: A, head and thorax; B, head, thorax and left tegmen; C, frons, clypeus and antenna; D, head in profile; E, antenna; F, male genitalia, posterior view; G, male genitalia, side view; H, middle portion of diaphragm; I, aedeagus, left side; J, genital style.

Testaceous-fuscous; 3 round spots on each lateral margin of frons and 4 round spots on each side of middle line, stramineous; clypeus, lower side of thorax, and legs fuscous; abdomen dark fuscous, not polished, abdominal tergites with 1 to 3 testaceous marks near each lateral margin.

Anal segment of male short, ring-like, a pair of laterally-compressed processes arising at lower apical angles, which are incurved to lie near the middle line, directed ventrad, bluntly rounded at tip. Pygofer with posterior opening broad, dorsolateral angles inflected, not at all produced caudad, diaphragm broad, its upper margin concave, more deeply pigmented at middle but not sclerotised. Aedeagus short, laterally compressed, widening distad, in side view with dorsal margin convex, ventral margin concave, a broad tract of minute teeth across middle, broader dorsally than ventrally, apical margin long, oblique, so that lower margin of aedeagus distinctly surpasses upper. Genital styles broadly triangular at base, slender in distal half, tapering distad and strongly sinuate. Female of same general appearance as male.

Male (brachypterous): 3·1 mm. *Female* (brachypterous): 3·8 mm.

Marquesas Is.: Hiva Oa. Holotype and 23 ♂, and 41 ♀, Avaoa valley, 1350 feet, 4.i.1932, on *Piper latifolium* (*Le Bronnec*); Kaava ridge, 2800 feet, 7.i.1932, on same plant host (*Le Bronnec*). Holotype from Avaoa valley.

This species is readily distinguished by its short broad vertex, brachypterous tegmina and its general dark fuscous, almost black, coloration, devoid of polish on the abdomen; it is also distinguishable by the proportions of the head and the detailed structure of the male genitalia.

Nesosydne cleanthes sp. n. (Fig. 39, A–K)

Vertex as long in middle line as broad at base, rounding obtusely into frons, as wide at apex as at base, posterior margin transverse, lateral margins very shallowly concave, apical margin shallowly convex with median carina feebly projecting, Y-shaped carina distinct, thickened, submedian carinae distinct, meeting at apex of vertex; frons longer in

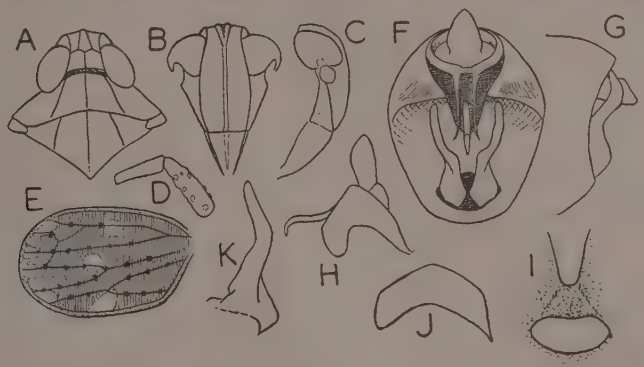

Fig. 39.—*Nesosydne cleanthes* sp. n.: A, head and thorax; B, frons and clypeus; C, head, side view; D, antenna; E, tegmen; F, male genitalia, posterior view; G, male genitalia, side view; H, anal segment of male, side view; I, middle portion of diaphragm; J, aedeagus, right side; K, genital style.

middle line than broad (2·1 : 1), widest at level of ocelli; lateral margins shallowly convex, disc transverse, not hollowed out longitudinally between middle and sides, median carina simple throughout; antennae reaching approximately to level of middle of clypeus, basal segment about twice as long as broad, second segment about 1·4 times as long as first. Pronotum with disc broader than long, lateral carinae of disc straight or feebly convex, diverging basad, attaining hind margin. Post-tibial spur with 6 teeth. Tegmina not

much longer than broad, only covering abdomen at base, venation regular, $Sc + R$ and Cu_1 forked distad of middle, M simple to apex, claval veins united level with fork of Cu_1, claval suture and vein Cu_2 absent, all veins bearing sparse long setae. Wings absent.

Fuscous; carinae of frons and vertex, 4 or 5 round spots on each side of median carina of frons and 4 or 5 round spots closely grouped on lateral margin, testaceous. Tegmina polished castaneous with 2 round spots in corium and 5 or 6 round margin, hyaline.

Anal segment of male short, narrowly ring-like, apical margin transverse, latero-apical angles strongly sinuately produced ventrad in a pair of slender spinose processes. Pygofer with posterior opening about as wide as long dorsoventrally, laterodorsal angles rather strongly produced, acutely angular, inflected mesad distally; diaphragm with dorsal margin deeply concave, median portion devoid of armature, less pigmented than lateral areas. Aedeagus rather short, strongly laterally compressed, in profile with dorsal margin convex and ventral margin correspondingly concave, orifice terminal, slightly oblique, sides of aedeagus devoid of spinose ornamentation. Genital styles broad in basal third, slender and obtusely angulately bent in distal two-thirds, subacute at apex.

Male (brachypterous): length, 3·2 mm.

Marquesas Is.: Hiva Oa. Holotype and 1 ♂, Temetiu summit, 4160 feet, 20.i.1932, on *Weinmannia* sp. (*Le Bronnec*).

This species is distinguished by the proportions of the head, coloration, and the structure of the male genitalia.

Nesosydne agenor sp. n. (Fig. 40, A–K)

Vertex as broad as long in middle line, rounding obtusely into frons, a little narrower at apex than at base, posterior margin transverse, lateral margins feebly converging distad, apical margin convex with median carina feebly projecting, Y-shaped carina strongly developed, submedian carinae meeting at apex of vertex; frons longer in middle line than

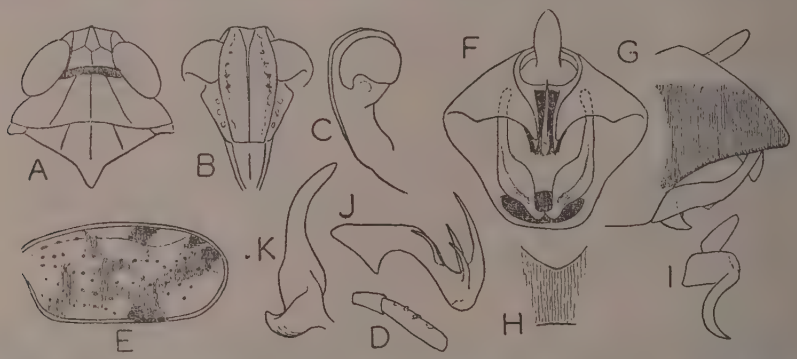

Fig. 40.—*Nesosydne agenor* sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, antenna; E, tegmen; F, male genitalia, posterior view; G, male genitalia, side view; H, middle portion of diaphragm; I, anal segment of male; J, aedeagus, left side; K, genital style.

broad (2·2 : 1), widest at middle, lateral margins distinctly convex, disc moderately hollowed out longitudinally near lateral margins, median carina simple throughout, elevated; antennae reaching to level of apex of clypeus, basal segment longer than broad at apex (2·2 : 1), second segment longer than first (1·4 : 1). Pronotum with disc broader across base than long in middle (1·5 : 1), lateral margins straight, diverging caudad, attaining

hind margin. Post-tibial spur with 5 or 6 teeth. Tegmina brachypterous, not reaching to apex of abdomen, broadly rounded at apex, venation regular, $Sc + R$ and Cu_1 forked near middle, M simple, vein Cu_2 and claval suture absent, each claval vein separately longer than common stalk. Wings absent.

Pallid stramineous; a suffusion on disc of frons outlining 5 or 6 round marginal spots, genae below antennae, except for 4 round spots, a transverse band on protibiae distally, protarsi basally, mesotibiae basally and distally, mesotarsi at apex, post-tibiae basally and distally, basal post-tarsal segment at middle and apex, a small spot on mesofemora and metafemora at apex, mesopleurites and metapleurites, abdomen laterally, and lower half of male genitalia, fuscous. Tegmina hyaline, a suffusion in clavus at base, a diffuse cloud across middle and a suffusion between R and M at margin dilute castaneous-fuscous, veins hyaline, with sparse brown granules.

Anal segment of male short, ring-like, apical margin rather short, lateroapical angles each strongly produced ventrad in a long stout spinose process curved ventrocaudad at its apex. Pygofer with posterior opening as broad as long dorsoventrally, laterodorsal angles strongly and broadly produced caudad, the inner margin produced mesad at apex of process; diaphragm not at all recessed inside lateral margins, dorsal margin deeply concave, median area densely pigmented but devoid of sclerotised armature. Aedeagus moderately long, tubular, deflexed in distal half, 2 long spinose processes dorsally near apex, and 2 similar processes on right near apex, all directed dorsocephalad. Genital styles moderately long, narrow, weakly incurved in distal half, bluntly rounded at apex, a short narrow lobe projecting mesocaudad at base.

Male: length, 3·8 mm.

Marquesas Is.: Hiva Oa. Holotype and 1 ♂, Mounaofefe, 2000 feet, 3.iii.1929, on *Premna tahitensis* (*Mumford and Adamson*); Atuona Valley, 28.iii.1929, on *Morinda citrifolia* (*Mumford and Adamson*). Holotype from Mounaofefe.

This species is distinguished by the proportions of the head, by coloration, and by the shape of the male genitalia.

Nesosydne orphne sp.n. (Figs. 41, A–J)

Vertex as broad at base as long in middle, obtusely rounding into frons, as wide at apex as at base, lateral margins distinctly concave, apical margin convex, submedian carinae not prominent, Y-shaped carina distinct, submedian carinae passing separately on to frons; frons in middle line longer than broad (1·5 : 1), widest at middle, lateral margins

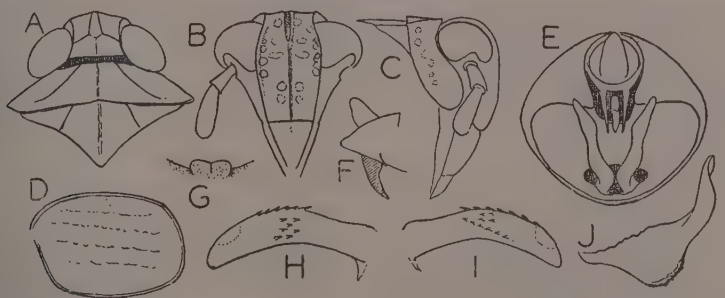

Fig. 41.—*Nesosydne orphne* sp. n.; A, head and thorax; B, frons, clypeus and right antenna; C, head in profile; D, tegmen; E, male genitalia, posterior view; F, anal segment of male, side view; G, armature of diaphragm; H, aedeagus, right side; I, aedeagus, left side; J, genital style.

convex, disc not hollowed out longitudinally, median carina simple in distal two-thirds, forked in basal third, feebly prominent; antennae not quite reaching to level of middle of clypeus, basal segment longer than broad (1·8 : 1), second segment longer than first (nearly 1·5 : 1). Pronotum with disc broader at base than long in middle (2·5 : 1), lateral carinae straight or feebly concave, strongly diverging laterocaudad, not attaining hind margin. Post-tibial spur with 8 teeth. Tegmina brachypterous, coriaceous, overlapping only basal portion of abdomen, 1·4 times as long as broad, apical margin rounded truncate, venation reticulate, irregular. Wings absent.

Dark castaneous-fuscous; 7 spots on each side of median carina of frons and 3 or 4 on each lateral margin, vertex, second segment of antennae, posterior margin of pronotum, and laterobasal margins of mesonotum, testaceous; all tibiae at apex, protarsi and mesotarsi entirely and post-tarsi distally, pallid stramineous. Tegmina uniformly dark castaneous.

Anal segment of male narrowly ring-like, apical margin rather narrow, each lateroapical angle strongly produced ventrad in a rather short, strongly laterally-compressed spinose process. Pygofer with posterior opening about as broad as long dorsoventrally, laterodorsal angles strongly and broadly produced, inflected mesad; diaphragm with dorsal margin concave, median portion distinctly produced caudad in a short broad process, forming a small ledge. Aedeagus rather short, tubular, slightly deflexed in distal half, orifice dorsally at apex, a small tract of about 6 minute teeth on right side near middle, separated by a narrow smooth area from an irregular row of about 7 minute teeth on dorsal margin, below which extends an irregular group of about 10 minute teeth. Genital styles moderately long, broad at base, tapering distally, slender and cylindrical in distal quarter and bluntly rounded at apex.

***Male* (brachypterous): length, 3·0 mm.**

Marquesas Is.: Tahuata. Holotype ♂, Hanamiai Valley, 1600 feet, 28.v.1930, sweeping over grasses. (*Le Bronnec and Tauraa*).

This species is distinguished by bodily proportions, by coloration, and by the structure of the male genitalia.

Nesosydne melampus sp. n. (Fig. 42, A–I)

Vertex as broad at base as long in middle line, obtusely rounding into frons, as wide at base as at apex, lateral margins distinctly concave, apical margin convex, submedian carinae not prominent, Y-shaped carina distinct, submedian carinae passing separately on to frons; frons in middle line longer than broad at widest part (1·7 : 1), widest at middle, lateral margins convex, disc scarcely hollowed out longitudinally near lateral margins, median carina simple in distal three-quarters, narrowly forked in basal quarter, weakly developed; antennae reaching to level of middle of clypeus, basal segment long, about twice as long as broad, second segment longer than first (1·5 : 1). Pronotum with disc twice as broad at base as long in middle line, lateral margins strongly diverging laterocaudad, not attaining hind margin. Post-tibial spur with 6 or 7 teeth. Tegmina brachypterous, not reaching to apex of abdomen, broadly rounded apically, opaque, coriaceous, coarsely pustulate over entire surface, veins immersed, claval suture absent. Wings absent.

Fuscous to fuscous-piceous: about 7 transverse bars on frons, 4 or 5 quadrate spots near each lateral margin, lateral margins, 4 round spots on genae below eyes, lateral margins of pronotal disc, 3 short stripes and about 3 spots on each side of pronotum, hind margin of pronotum, a few marks on thoracic pleurites, and spots sublaterally on abdominal tergites testaceous or stramineous; median carina of frons, pronotum and mesonotum ferruginous; profemora and mesofemora at apex, all tibiae at apex, protarsi and mesotarsi entirely, and each post-tarsal segment distally, pallid stramineous or ivory; posterior margin of pygofer narrowly dark testaceous. Tegmina subopaque to opaque, lighter portions tinged testaceous

basal, medial and apical suffusions, and all granules, fuscous-piceous; tegmina sometimes entirely fuscous-piceous.

Anal segment of male narrowly ring-like, apical margin moderately wide, lateroapical angles each strongly produced ventrad in a moderately long, stout spinose process. Pygofer with posterior opening about as long dorsoventrally as broad, laterodorsal angles weakly produced, and feebly inflected mesad; diaphragm with dorsal margin of medial portion convex on each side of middle, slightly incised medially and produced caudad, vertically carinate in middle line to dorsal margin of orifice of diaphragm. Aedeagus only moderately long, laterally compressed, orifice lenticular, opening on dorsal surface distally, a tract of small teeth on each side of aedeagus dorsally and laterally between apex and middle.

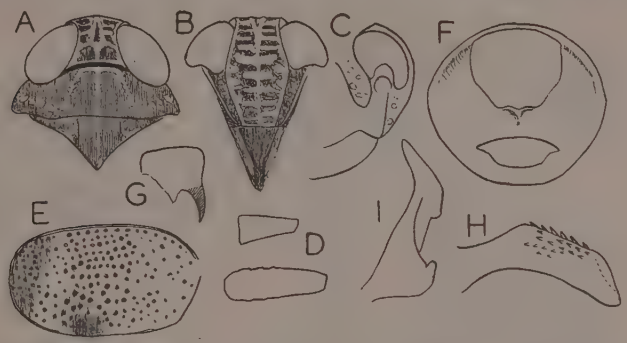

FIG. 42.—*Nesosydne melampus* sp. n.: A, head and thorax; B, head, anterior view; C, head in profile; D, first and second segments of antenna; E, tegmen; F, diaphragm of pygofer, posterior view; G, anal segment of male, side view; H, aedeagus, left side; I, genital style.

Genital styles moderately long, each produced caudad in a small lobe on inner margin at base, moderately broad throughout, twisted at middle, with inner surface concave, apical margin obliquely convex, angles rounded, the inner angle slightly produced.

Female similar in general appearance to male.

Male (brachypterous): length, 3·3 mm. *Female* (brachypterous): length, 3·2 mm.

MARQUESAS IS. Hiva Oa. Holotype ♂ and 1 ♀, Vaiepoepo, 2450 feet, 6.iii.1929; Kopaafaa, 2800 feet, 25.ii.1930, on *Weinmannia parviflora* (All *Mumford* and *Adamson*). Nukuhiva. 3 ♀, Ooumu, 4050 feet, 12.xi.1929, beating on *Ascarina* ? (F. no. 579) (*Mumford and Adamson*) are provisionally assigned to this species, which is distinguished by characters of the male genitalia. Holotype from Vaiepoepo.

Nesosydne acastus sp. n. (Fig. 43, A–I)

Vertex in middle line as long as broad at base, rounding obtusely into frons, as wide at apex as at base, posterior margin very shallowly angulately excavate, lateral margins feebly concave, anterior margin feebly convex with median carina projecting, Y-shaped carina strongly present, submedian carinae slightly thickened, passing separately on to frons; frons longer in middle than broad (2·1 : 1), widest at middle, lateral margins shallowly convex, disc not hollowed out longitudinally near lateral margins, median carina simple distally, narrowly forked at base, elevated; antennae reaching to level of middle of clypeus, basal segment nearly 1·6 times as long as broad at apex, second segment 1·8

times as long as first. Pronotum with disc twice as broad at base as long in middle, lateral margins concave, diverging caudad, not attaining hind margin. Post-tibial spur with 7 teeth. Tegmina not quite attaining apex of abdomen, $Sc + R$ forked two-thirds from base, M simple, Cu_1 forked near middle of tegmen, vein Cu_2 and claval suture absent, each claval vein separately much longer than common stalk. Wings absent.

Dilute fuscous; round spots laterally and submedially on frons, and on sides of head below eyes, all carinae and margins of head and thorax, rostrum, coxae, except sometimes basally, and legs, except for 2 transverse bands on protibiae and mesotibiae, abdomen dorsally in middle, and in posterior half ventrally, stramineous. Tegmina hyaline, a suffusion over basal quarter and across distal third, dilute castaneous; veins pallid or stramineous with sparse reddish-brown granules.

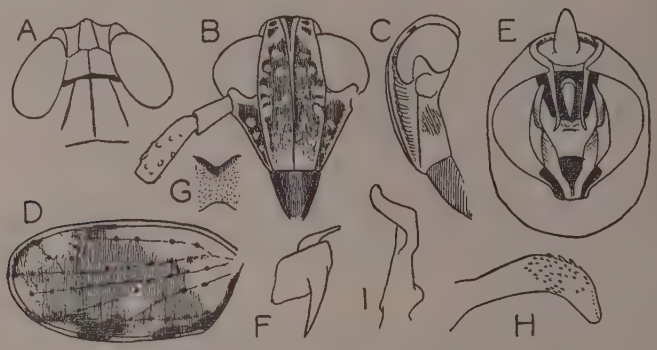

FIG. 43.—*Nesosydne acastus* sp. n.: A, vertex and disc of pronotum; B, head and right antenna, anterior view; C, head in profile; D, tegmen; E, male genitalia, posterior view; F, anal segment of male, side view; G, middle portion of diaphragm; H, aedeagus, left side; I, genital style.

Anal segment of male short, ring-like, with apical margin moderately broad, lateroapical angles strongly produced ventrad in a weakly curved, laterally-compressed spinose process. Pygofer with posterior opening approximately as long dorsoventrally as broad, laterodorsal angles rather strongly produced, weakly inflected mesad; diaphragm with dorsal margin shallowly angulately concave, slightly thickened at middle but devoid of armature. Aedeagus moderately long, tubular, slightly widening from base to distal half, deflexed through 45 degrees in distal half, apical margin oblique, orifice terminal facing dorsally, a dense tract of minute teeth encircling aedeagus just distad of middle. Genital styles rather long, slender throughout, moderately bent at apical quarter.

Female of same general appearance as male.

Male: length, 3·0 mm.; *Female:* length, 3·2 mm.

MARQUESAS IS.: Hiva Oa. Holotype ♂ and 1 ♀ and 1 nymph, Matauuna, 3760 feet, 1.viii.1929 on *Crossostylis biflora* (*Mumford and Adamson*).

This species is distinguished by the proportions of the head, by coloration and by the shape of the male genitalia.

Nesosydne oroanda sp. n. (Fig. 44, A–J)

Vertex broader across base than long in middle line (1·4 : 1), obtusely rounding into frons, as wide at apex as at base, posterior margin transverse, lateral margins feebly concave, anterior margin convex with submedian carinae not projecting, Y-shaped carina distinct,

submedian carinae meeting on frons at base ; frons longer in middle line than broad (1·7 : 1), widest at middle, lateral margins convex, disc not or scarcely hollowed out longitudinally near lateral margins, median carina simple in basal four-fifths, narrowly forked on basal fifth, not very strongly elevated above level of disc ; antennae reaching to level of apex of clypeus, basal segment longer than broad (2·7 : 1), second segment longer than first (1·1 : 1). Pronotum with disc twice as broad at base as long in middle, lateral carinae of disc straight, diverging caudad not quite, or only weakly, attaining hind margin. Post-tibial spur with 8 teeth. Tegmina brachypterous, not attaining apex of abdomen, broadly rounded apically, venation regular, $Sc + R$ and Cu_1 forked just distad of middle of tegmen, M forked just basad of transverse line of veinlets, Cu_2 and claval suture absent, each claval vein separately longer than common stalk. Wings absent.

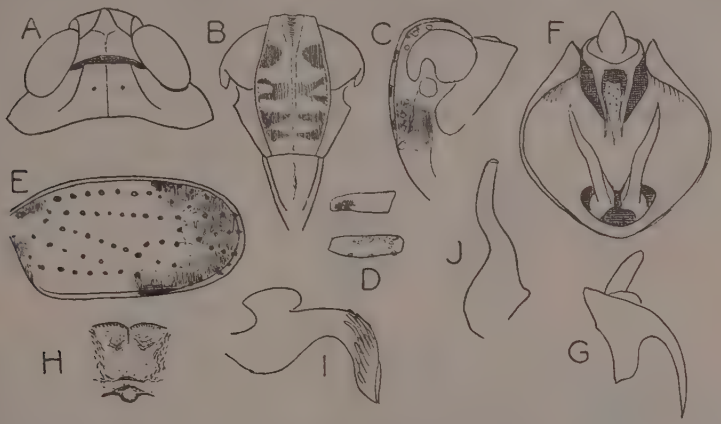

Fig. 44.—*Nesosydne oroanda* sp. n. : A, vertex and pronotum ; B, frons and clypeus ; C, head in profile ; D, first and second segments of antenna ; E, tegmen ; F, male genitalia, posterior view ; G, anal segment of male, side view ; H, middle portion of diaphragm ; I, aedeagus, left side ; J, genital style.

Light stramineous ; disc of frons except for 3 transverse bars and 2 marginal spots, sides of head below antennae except for 3 small spots, clypeus at base, pronotum anteriorly, thoracic pleurites in part, 2 transverse bars on tibiae, post-tarsi at middle, and suffusions on abdomen, fuscous. Tegmina hyaline, very faintly tinged fuscous, basal margin of clavus, a spot on posterior margin of clavus near base and a larger spot near apex, a light suffusion in middle of disc and a small spot at node, fuscous ; veins pallid, almost ivory, beset with coarse castaneous granules.

Anal segment of male short, ring-like, apical margin short, lateroapical angles each strongly produced ventrad in a long slender decurved spinose process. Pygofer with posterior opening about as long dorsoventrally as broad, laterodorsal angles little produced, feebly inflected mesad ; diaphragm with dorsal margin concave, median portion feebly produced in a lip-like process, indented at middle, lower margin of diaphragm medially produced caudad in a small knob-like eminence, whole surface of diaphragm finely dorsoventrally striate. Aedeagus short, tubular, narrow and decurved in distal half, orifice terminal, oblique, dorsal margin at base inflated into an ovoid lobe, a tract of small teeth obliquely encircling aedeagus distally, occupying most of distal half of dorsal margin and tapering down sides to ventral margin at base of orifice. Genital styles broad at base, a very small process on mesal surface, distally slender, sinuately tapering to blunt apex.

Male : length, 3·0 mm.

Marquesas Is.: Hatutaa I. 800 feet, middle of east side, 30.ix.1929 on *Nelochia velutina* (*A. M. Adamson*).

This species is distinguished by the proportions of the head, by coloration, and by the shape of the male genitalia.

Nesosydne linus sp. n. (Fig. 45, A–J)

Vertex longer in middle line than broad at base (2 : 1), meeting frons at an acute angle, as wide at apex as at base, posterior margin transverse, lateral margins subparallel, feebly concave, apical margin convex with median carina projecting, Y-shaped carina distinct, submedian carinae prominent, united much before apex; frons longer in middle line than broad (2·4 : 1), as wide at base as at apex, widest at middle, lateral margins shallowly convex, disc not or scarcely hollowed out longitudinally near lateral margins, median carina simple, strongly elevated, more so at base than at apex; antennae short, reaching only to base of clypeus, first segment a little longer than broad, second segment 1·3 times as long as first. Pronotum with disc about as long as broad,

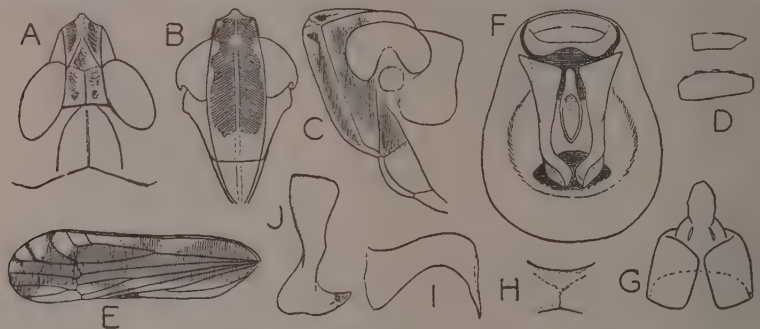

Fig. 45.—*Nesosydne linus* sp. n.: A, vertex and disc of pronotum; B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment; H, middle portion of diaphragm; I, aedeagus, left side; J, genital style.

lateral carinae of disc strongly convex, attaining hind margin; mesonotal disc narrow, with lateral margins weakly concave, only a little diverging basad. Post-tibial spur with 8 teeth, the apical 2 close together, almost side by side. Tegmina much surpassing apex of abdomen, broadly rounded at apex, $Sc + R$ forked near middle of tegmen, M simple to nodal line, Cu_1 forked slightly distad of level of $Sc + R$ fork, vein Cu_2 strongly present, each claval vein separately longer than the common stalk, the latter entering commissural margin of clavus some distance before apex, commissural margin of clavus narrowly foliately elevated. Wings present, almost as long as tegmina.

Dark castaneous; 2 spots near each lateral margin of frons, all carinae of head, pronotum and mesonotum, antennae, coxae distally, legs, abdominal tergites posteriorly, and ventrites broadly posterolaterally, and most of pygofer, pallid stramineous, almost ivory. Tegmina hyaline, suffused castaneous, an elongate spot in costal cell near middle, an ovate spot at stigma, a spot in apical cells R and M, an elongate spot from anal angle to union of claval veins with margin, and posterior half of clavus from near this point to base, transparent and colourless.

Anal segment of male short, ring-like, lateroapical angles not at all produced. Pygofer with posterior opening longer dorsoventrally than broad, laterodorsal angles not produced.

diaphragm with dorsal margin transverse near middle, middle part of diaphragm devoid of sclerotic armature, produced caudad in a subtetrahedral lobe, as figured. Aedeagus rather short, tubular, curved dorsocaudad from base, strongly and abruptly decurved ventrad distally, devoid of spinose ornamentation, orifice large, ovate, terminal. Genital styles as figured, produced laterad at base in an acutely pointed lobe, narrow medially, expanding distad, apically truncate with apical angles rounded.

Female of same general appearance as male.

Male : length, 3·3 mm. ; tegmen 3·4 mm. *Female :* length, 3·5 mm. ; tegmen, 3·9 mm.

Marquesas Is. : Uapou. Holotype and 31 ♂ and 44 ♀ and 1 mutilated specimen, Teavanui, Paaumea Valley, 2900 feet, 27.xi.1931, on *Freycinetia* ; Tekohepu summit, 3200 feet, 28.xi.1931, on *Metrosideros collina*, *Freycinetia* and *Cyathea* ; Teavanui Pass, 2900 feet, 27.xi.1931, on *Freycinetia* and beating *Bidens lantanoides* ; Vaihakaatiki, 3020 feet, Hakahetau Valley, 18.xi.1931, on *Freycinetia* ; Teavaituhai, Hakahetau Valley, 3020 feet, 19.xi.1931, on *Freycinetia* (all *Le Bronnec*) ; Hitikau Crest, 2950 feet, Ua Huka, 3.iii.1931, on *Hibiscus tiliaceus* (*Le Bronnec and Tauraa*). Holotype from Teavanui Pass, 2900 feet.

The superficial appearance of this species is very similar to that of the delphacine *Sardia*, and this is the only Polynesian delphacid with which it could possibly be confused.

Nesosydne dinomache sp. n. (Fig. 46, A–K)

Vertex as broad at base as long in middle line, rounding obtusely into frons, as wide at apex as at base, posterior margin transverse or very shallowly excavate, lateral margins shallowly concave, apical margin convex with median carina not projecting, Y-shaped carina distinct, submedian carinae weak, passing separately on to frons ; frons longer in middle line than broad (2·0 : 1), widest at middle, lateral margins shallowly convex, disc hollowed out longitudinally on each side of middle line, median carina simple for most of length, narrowly forked at base ; antennae reaching to level of middle of labrum, basal

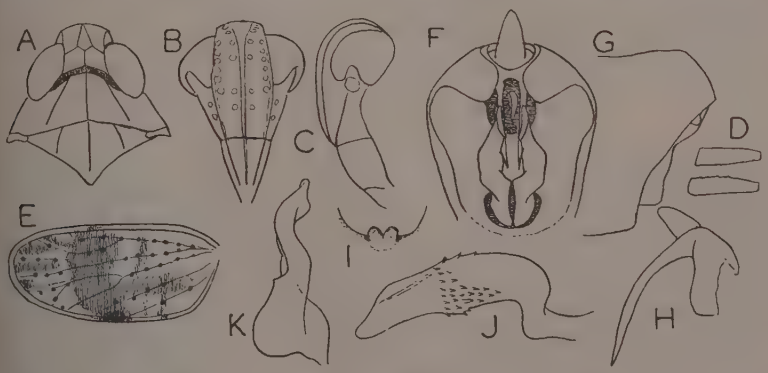

Fig. 46.—*Nesosydne dinomache* sp. n. : A, head and thorax ; B, frons and clypeus ; C, head in profile ; D, first and second segments of antenna ; E, tegmen ; F, male genitalia, posterior view ; G, male genitalia, left side ; H, anal segment of male, right side ; I, armature of diaphragm ; J, aedeagus, right side ; K, genital style.

segment more than twice as long as broad, second segment as long as or slightly longer than first (about 1·1 : 1). Pronotum with lateral carinae of disc feebly convex, diverging basad, not attaining hind margin. Post-tibial spur with 7 teeth. Tegmina not quite reaching to apex of abdomen, rather deeply rounded apically, $Sc + R$ forked irregularly between middle of tegmen and nodal line, M forked at nodal line, Cu_1 forked nearly level with union of claval veins, claval suture absent, vein Cu_2 present. Wings absent.

Light fuscous; 8 round spots on each side of median carina from its origin on vertex to near frontoclypeal suture, and 5 closely grouped spots on each lateral margin, 3 round spots on genae, carinae of vertex, carinae, lateral lobes and hind margin of pronotum, lateral carinae of mesonotal disc, procoxae and mesocoxae distally, profemora and mesofemora except for a transverse band distally, tibiae except for 2 transverse bands, some round spots sublaterally on abdominal tergites and a suffusion laterally on ventrites, stramineous. Tegmina hyaline, veins concolorous with prominent sparse reddish-brown granules; an oblique suffusion from basal angle of clavus to anterior margin one-third from base, and a second suffusion from hind margin at apex of clavus across to stigma, castaneous.

Anal segment of male short, narrowly ring-like, apical margin short, lateroapical angles very strongly produced ventrad in a pair of long slender shallowly curved spinose processes. Pygofer with posterior opening longer dorsoventrally than broad, laterodorsal angles strongly produced caudad, distally inflected mesoventrad, bluntly rounded at apex; diaphragm with dorsal margin concave, a pair of small blunt eminences present at middle. Aedeagus narrowly tubular, in profile strongly sinuate in basal half, almost straight in distal half, orifice lenticular, opening on dorsal surface subapically, an oblique sublinear tract of small teeth on each side, the tract on the left side slightly more basad than that on right. Genital styles moderately long, broad basally, distally rather narrow, strongly sinuate as figured.

Female similar in general appearance to male.

Male (brachypterous): length, 3·6 mm. *Female* (brachypterous): length, 4·0 mm.

Marquesas Is.: Uapou. Holotype and 10 ♂ and 6 ♀, Vaihakaatiki, Hakahetau Valley, 3020 feet, 18.xi.1931, on *Cyrtandra*; Tekohepu summit, 3200–3300 feet, 27, 28.xi.1931, on *Cyrtandra*, *Weinmannia* and *Sclerotheca*; Teavaituhai, Paaumea side, 2020 feet, 19.xi.1931, on *Vaccinium* and *Cyrtandra*; Teavanui Pass, 2900 feet, 26.xi.1931 (all *Le Bronnec*). Holotype from Vaihakaatiki.

This species is distinguished by the proportions of the head, by coloration, and by structural details of the male genitalia.

Nesosydne elatus sp. n. (Fig. 47, A–K)

Vertex longer in middle line than broad at base (2·1 : 1), subacutely rounding into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina strongly projecting, Y-shaped carina obsolete, submedian carinae prominent, uniting at apex of vertex; frons longer in middle line than broad (2·8 : 1), widest just distad of middle, lateral margins feebly convex, disc hollowed out longitudinally on each side of middle line, median carina simple; antennae reaching to level of middle of labrum, basal segment about 3 times as long as broad, second segment 1·8 times as long as first. Pronotum with disc longer than broad, lateral carinae of disc straight, diverging caudad, attaining hind margin. Post-tibial spur with 8 or 9 teeth. Tegmina surpassing apex of abdomen, deeply rounded apically, $Sc + R$ forked one-third from base, M simple to nodal line, Cu_1 forked at middle of tegmen, claval suture present, claval veins united about one-quarter from base of tegmen. Wings present, surpassing apex of abdomen.

Pallid stramineous; thoracic pleurites, procoxae and mesocoxae lightly suffused fuscous; abdomen dorsally and ventrally, except at margins, and male genitalia, except dorsally, castaneous or fuscous. Tegmina hyaline with concolorous veins, a suffusion across middle, broadest in *M*, and a small suffusion in *M* at apex, fuscous.

Anal segment of male small, ring-like, apical margin shallowly convex, lateroapical angles obscure, not at all produced. Pygofer with posterior opening much longer dorsoventrally than broad, laterodorsal angles subacute but little produced, if at all; diaphragm with dorsal margin concave, devoid of any armature at middle. Aedeagus narrowly

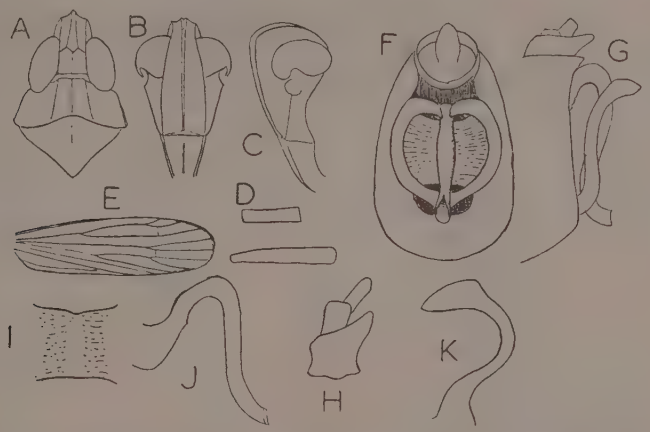

FIG. 47.—*Nesosydne elatus* sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, male genitalia, left side; H, anal segment of male; I, middle portion of diaphragm; J, aedeagus, left side; K, genital style.

tubular, exceptionally long, directed dorsocaudad from base then recurving ventrad at point of emergence above diaphragm, then shallowly curved caudad at apex, which lies between bases of genital styles; orifice ovate, terminal. Genital styles long, narrow, strongly convex, directed dorsolaterad then incurved to meet in middle line at apex.

Female in general appearance similar to male.

Male: length, 3·2 mm.; tegmen, 3·3 mm. *Female:* length, 3·8 mm.; tegmen, 3·2 mm.

MARQUESAS IS.: Uapou. Holotype and 120 ♂, 90 ♀ and 155 nymphs, Tekohepu summit, 3000 feet, 30.xi.1931, on *Cyrtandra*; Teavaituhai, Paaumea side, 3020 feet, 20.xi.1931, beating *Bidens lantanoides* and *Freycinetia* sp.; Vaihakaatiki, Hakahetau Valley, 2800 feet, 19.xi.1931, on *Freycinetia*; Teoatea, Hakahetau Valley, 2200 feet, 20.xi.1931, on *Freycinetia*; Teavanui Pass, 2900 feet, 27.xi.1931, beating *Bidens lantanoides* and on *Freycinetia* (all *Le Bronnec*). Holotype from Tekohepu.

This species is distinguished by the structure of the head, by coloration and by the shape of the male genitalia. It is perhaps most easily recognised by the colour pattern on the tegmina and, in the male, by the striking shape of the aedeagus and genital styles.

Nesosydne sorix sp. n. (Fig. 48, A–K)

Vertex broader at base than long in middle line (1·1 : 1), broadly rounding into frons, almost as wide at apex as at base, posterior margin transverse, lateral margins shallowly concave, anterior margin broadly convex, median carina not at all projecting, Y-shaped carina distinct, submedian carinae uniting at apex of vertex ; frons in middle line twice as long as broad, widest at middle, lateral margins convex, disc only very slightly hollowed out longitudinally near lateral margins, median carina simple, moderately elevated above level of disc ; antennae reaching to level of apex of clypeus, basal segment longer than broad (1·7 : 1) second segment longer than first (2 : 1). Pronotum with disc twice as broad across base as long in middle, lateral carinae straight, diverging caudad, attaining hind margin. Post-tibial spur with 6 or 7 teeth. Tegmina brachypterous, not attaining apex of abdomen, broadly rounded apically, venation regular, $Sc + R$ and Cu_1 forked at middle of tegmen, M simple to nodal line, claval suture absent, perhaps faintly indicated by colour, claval veins not uniting.

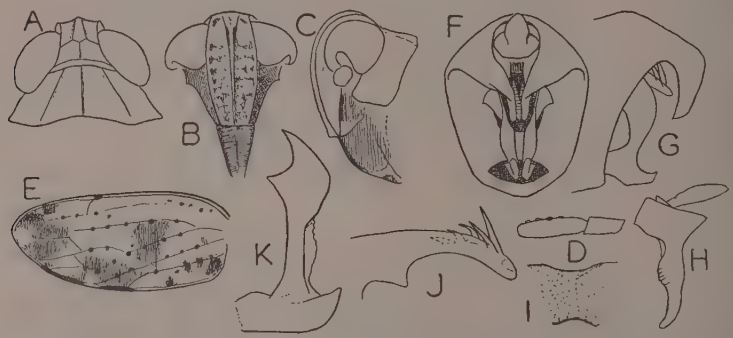

Fig. 48.—*Nesosydne sorix* sp. n. : A, vertex and pronotum ; B, frons and clypeus ; C, head in profile ; D, antenna ; E, tegmen ; F, male genitalia, posterior view ; G, male genitalia, left side ; H, anal segment of male, left side ; I, middle portion of diaphragm ; J, aedeagus, left side ; K, genital style.

Stramineous ; disc of frons, except for a series of round spots, testaceous ; clypeus, sides of head below antennae, except for 3 spots, pronotum in anterior half, mesonotal disc between carinae, thoracic pleurites in part, and a suffusion on abdominal tergites and ventrites sublaterally, and on pygofer except marginally, fuscous. Tegmina hyaline, a suffusion at base, an interrupted suffusion from costal margin at basal third to posterior margin at apex of clavus, and a further interrupted suffusion from apex of clavus to apical margin at middle, dilute fuscous or castaneous, veins concolorous with sparse fuscous granules ; the fuscous suffusion on the corium sometimes forms a fairly distinct narrow line indicating the position of the obsolete claval suture.

Anal segment of male short, ring-like, apical margin moderately broad, lateroapical angles each strongly produced ventrocephalad in a long spinose process. Pygofer with posterior opening longer dorsoventrally than wide, laterodorsal angles very strongly produced caudad, deflexed distally and tapering to narrowly rounded apex ; diaphragm with dorsal margin deeply concave, median portion devoid of ornamentation. Aedeagus moderately long, produced ventrally at base in a small triangular lobe, narrowed and weakly deflexed in distal half, 2 long spinose processes dorsally on left at apex, 3 spinose processes, of diminishing size, dorsolaterally on right subapically, orifice small, terminal. Genital

styles produced mesocaudad at base in an acute lobe, rather narrow in mesal portion, expanding distally with apical angles acute and apical margin oblique, concave.

Male (brachypterous): length, 3·5 mm. *Female* (brachypterous): length, 4·0 mm.

Marquesas Is.: Tahuata. Holotype and 1 ♂ and 3 ♀ and 1 nymph, Amatea, 2600 feet, 28.xi.1930, on *Metrosideros collina* (*Le Bronnec* and *Tauraa*).

This species is distinguished by bodily proportions, by coloration, and by structure of the male genitalia.

Nesosydne siderion sp. n. (Fig. 49, A–J)

Vertex as long in middle line as broad at base, rounding evenly into frons, as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin convex with submedian carinae slightly projecting, Y-shaped carina present, rather weak, submedian carinae passing separately on to frons; frons in middle line longer than broad (2·2 : 1), widest at middle, lateral margins convex, disc not hollowed out near lateral margins; median carina simple in distal half, narrowly forked in basal half, moderately elevated above level of disc; antennae reaching to level of apex of clypeus, basal segment longer than broad (2·5 : 1), second segment longer than first (1·2 : 1). Pronotum with disc broader at base

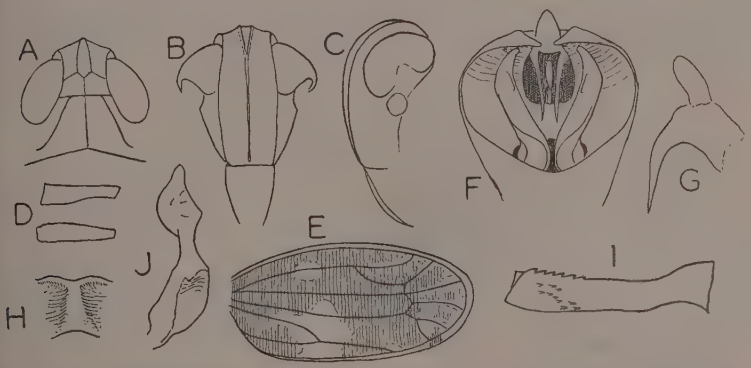

Fig. 49.—*Nesosydne siderion* sp. n.: A, vertex and disc of pronotum; B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment of male; H, middle portion of diaphragm; I, aedeagus, right side; J, genital style.

than long in middle line (1·7 : 1), lateral carinae diverging caudad, concave, not quite attaining hind margin. Post-tibiae with 7 teeth laterally. Tegmina brachypterous, not reaching to apex of abdomen, broadly rounded distally, venation regular, $Sc + R$ forked two-thirds from base, Cu_1 forked at middle, M simple to nodal line, vein Cu_2 and claval suture absent; each claval vein separately equal to common stalk or a little shorter. Wings absent.

Testaceous; disc of frons between carinae, clypeus, antennae, pronotum behind eyes, thoracic pleurites in part, legs, and a suffusion on abdominal tergites, dilute fuscous. Tegmina subhyaline, tinged yellow, a suffusion from inner angle of clavus obliquely to anterior margin of tegmen at node, thence transversely to apex of clavus, castaneous-fuscous, veins concolorous with very sparse fuscous granules in light areas.

Anal segment of male short, ring-like, apical margin short, transverse, lateroapical angles each strongly produced ventrad in a moderately long, laterally compressed spinose

process. Pygofer with posterior opening broader than long dorsoventrally, laterodorsal angles strongly produced caudad, not deflexed distally; diaphragm with dorsal margin concave, median portion sclerotised, shallowly biconvex, with a vertical median ridge extending to dorsal margin of orifice of diaphragm. Aedeagus moderately short, tubular, porrect, orifice terminal, about 6 small teeth on dorsal margin at apex, about 6 teeth irregularly and obliquely across right side near apex, and a corresponding group of about 5 teeth on left side. Genital styles moderately long, rather broad at base, narrow in middle third and expanded apically in a lobe with its outer margin convex, its inner margin shallowly concave, these margins meeting acutely at apex.

Male (brachypterous) length: 4·0 mm.

MARQUESAS Is.: Fatu Hiva. Holotype ♂, 3100 feet, on ridge east of Oomoa Valley, 28.viii.1930 on *Reynoldsia tahitensis* (*Le Bronnec*).

This species is distinguished by bodily proportions, coloration, and structure of the male genitalia.

Nesosydne helicaon sp. n. (Fig. 50, A–I)

Vertex broader than long in middle line (1·2 : 1), rounding obtusely into frons, as wide at apex as at base, posterior margin transverse, lateral margins almost straight, anterior margin transverse with submedian carinae moderately projecting, Y-shaped carina distinct, submedian carinae passing separately on to frons; frons longer in middle line than broad (2·5 : 1), widest at middle, lateral margins shallowly convex, disc moderately hollowed out longitudinally near lateral margins, median carina simple in distal three quarters, forked

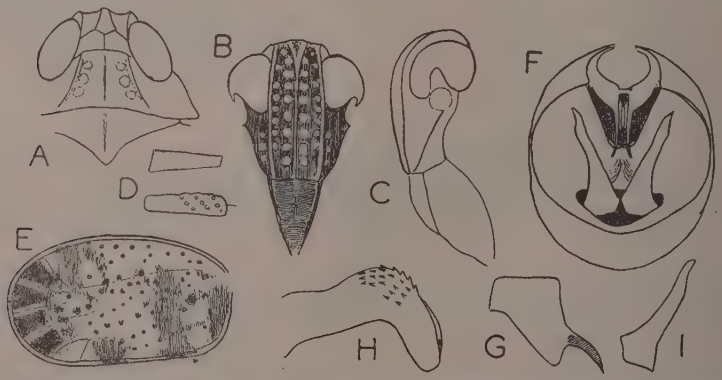

FIG. 50.—*Nesosydne helicaon* sp. n.: A, vertex and right half of thorax; B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment of male, left side; H, aedeagus, left side; I, genital style.

in basal quarter, elevated; antennae reaching to level of apex of clypeus, basal segment 2·6 times as long as broad at apex, second segment 1·1 times as long as first. Pronotum with disc 2·5 times as broad at base as long in middle, lateral margins concave, widely diverging caudad, not attaining hind margin. Post-tibial spur with 7 teeth. Tegmina brachypterous, not reaching beyond middle of abdomen, rather coriaceous, broadly rounded apically, venation rather irregular with some anastomosis, $Sc + R$ and Cu_1 forked about middle, M simple, Cu_2 and claval suture absent, each claval vein much longer than common stalk. Wings absent.

Dark testaceous or light fuscous; lateral carinae and median carina of frons tinged orange; 4 longitudinal rows of round spots on frons, a row of 3 spots on each side of pronotal disc near lateral carinae, 7 spots, some linear, near hind margin of pronotum outside discal area, abdominal tergites in middle line and 3 linear marks in each tergite laterally, pallid stramineous; posterior half of disc of vertex, a suffusion in anterior part of pronotal disc, and a suffusion on pronotum behind each eye, and mesonotal disc medially, castaneous-fuscous. Tegmina subhyaline, an irregular suffusion in basal third, 2 spots on posterior margin of clavus, and an intense suffusion in each apical cell castaneous-fuscous, veins pale or concolorous, with sparse castaneous pustules.

Anal segment of male short, ring-like, apical margin short, lateroapical angles each strongly produced ventrad in a spinose process, curved laterad at its apex. Pygofer with posterior opening about as long dorsoventrally as broad, laterodorsal angles a little produced and slightly inflected mesad, diaphragm with dorsal margin concave, distinctly sclerotised in a short lip at middle. Aedeagus rather short, a little laterally compressed, strongly deflexed in distal half, orifice large, lenticular, situated on upper surface at apex, a tract of about 30 small spines dorsally at middle. Genital styles moderately long, broadest near base, evenly tapering distad, weakly bent in distal quarter, bluntly rounded at apex.

Male: length, 4·4 mm.

Marquesas Is.: Fatu Hiva. Holotype and 1 ♂, Ihiota, 600 feet, Hanavave Valley, 10.ix.1930, on herbage (*Le Bronnec*).

This species is distinguished by the proportions of the head, by coloration, and by the shape of the male genitalia.

Nesosydne latona sp. n. (Fig. 51, A–I)

Vertex as broad as long in middle line, rounding obtusely into frons, as wide at apex as at base, posterior margin transverse, lateral margins shallowly concave, anterior margin feebly convex with submedian carinae not projecting, Y-shaped carina distinct, submedian carinae passing separately on to frons; frons longer in middle line than broad (1·9 : 1), widest at middle, lateral margins convex, disc not or scarcely hollowed out longitudinally near lateral margins, median carina simple in distal three-quarters, forked on basal quarter, not strongly elevated above level of disc; antennae reaching to level of labrum, basal

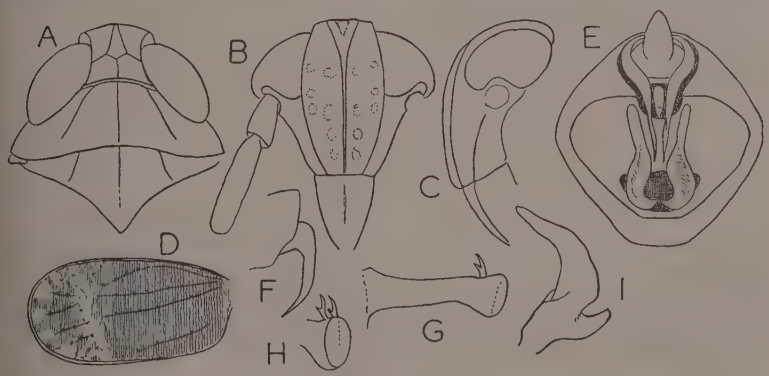

Fig. 51.—*Nesosydne latona* sp. n.: A, head and thorax; B, frons, clypeus and right antenna; C, head in profile; D, tegmen; E, male genitalia, posterior view; F, anal segment of male, left side; G, aedeagus, left side; H, apex of aedeagus, posterolateral view; I, genital style.

segment of antennae twice as long as broad, second segment 1·4 times as long as subapical. Pronotum with disc broader across base than long (2·5 : 1), lateral margins straight, diverging caudad, attaining hind margin. Post-tibial spur with 7 teeth. Tegmina brachypterous, subcoriaceous, not reaching to apex of abdomen, broadly rounded apically, venation rather irregular, *Sc* + *R* and *Cu* apparently forked near middle, *M* simple, claval suture absent. Wings absent.

Fuscous; 4 spots on each side of median carina of frons, and about 5 at each lateral margin, 3 on genae, and a few near hind margin of pronotum laterad of disc, testaceous or stramineous; rostrum, tibiae at apex and tarsi, pallid stramineous. Tegmina castaneous, sparsely marked with hyaline spots as figured.

Anal segment of male short, ring-like, apical margin short, lateroapical angles each strongly produced ventrad in a long laterally compressed spinose process curved ventrocephalad at its apex. Pygofer with posterior opening slightly longer dorsoventrally than broad, laterodorsal angles not produced, flattened posteriorly to form a triangular facet with apex directed mesad; posterior lateral margins moderately convex; diaphragm with dorsal margin concave, median area with dorsal margin transverse, a weak vertical carina in middle line terminating at upper margin of orifice of diaphragm. Aedeagus short, tubular, porrect caudad, abruptly widened at apex, orifice terminal, a pair of short two-branched spinose processes on dorsal margin at apex, directed dorsad. Genital styles with a subtriangular curved lobe at base directed mesocaudad, main limb of style narrowly cylindrical, curved dorsad through 45 degrees near middle, tapering distally to bluntly-rounded apex.

Male: length, 3·2 mm.

Marquesas Is.: Fatu Hiva. Holotype ♂, Teavaipuhiau, 2150 feet, 25.viii.1930, on *Weinmannia parviflora* (*Le Bronnec*).

This species is distinguished by the proportions of the head, by coloration, and by the shape of the male genitalia.

Nesosydne lanista sp. n. (Fig. 52, A–M)

Vertex as long in middle as broad at base, obtusely curving into frons, as wide at apex as at base, posterior margin transverse, lateral margins distinctly concave, anterior margin convex with median carina prominent, Y-shaped carina present, submedian carinae distinct but not prominent, approximated distally but passing separately on to frons; frons longer in middle line than broad (2·4 : 1), as wide at apex as at base, lateral margins convex, disc only feebly hollowed out longitudinally near lateral margins, median carina simple for most of length, incipiently forked at base; antennae reaching to level of apex of clypeus, basal segment twice as long as broad, second segment 1·4 times longer than first. Pronotum with disc about twice as broad as long, lateral carinae of disc concave, diverging caudad, not attaining hind margin. Post-tibial spur with 8 or 9 teeth. Tegmina brachypterous, not reaching to apex of abdomen, obliquely rounded apically, venation regular, *Sc* + *R* and Cu_1 forked just distad of middle, *M* simple to nodal line, vein Cu_2 feebly present, indicated by granules, each claval vein separately longer than common stalk. Wings absent.

Testaceous; clypeus, thoracic pleurites, coxae, femora and abdomen sometimes fuscous; a faint pattern of spots on frons and on sides of head below eyes, stramineous. Tegmina testaceous-hyaline with light brown suffusion; in male, castaneous-hyaline, with granules on veins darker, pale spots on corium and around margin as figured.

Anal segment of male short, ring-like, apical margin short, lateroapical angles produced ventrocaudad in a pair of very stout and moderately long spinose processes. Pygofer with posterior opening a little longer dorsoventrally than wide, lateroapical angles strongly produced, inflected mesad; diaphragm with dorsal margin rectangulately concave at

middle, devoid of armature. Aedeagus tubular, moderately long, porrect, 5 spinose processes dorsally at middle and 2 at apex, all directed dorsocephalad, orifice terminal. Genital styles moderately long, as figured.

Female in general appearance similar to male but with general coloration testaceous and tegmina only weakly suffused with fuscous.

Male (brachypterous) : length, 4·1 mm. *Female* (brachypterous) : length, 5·0 mm.

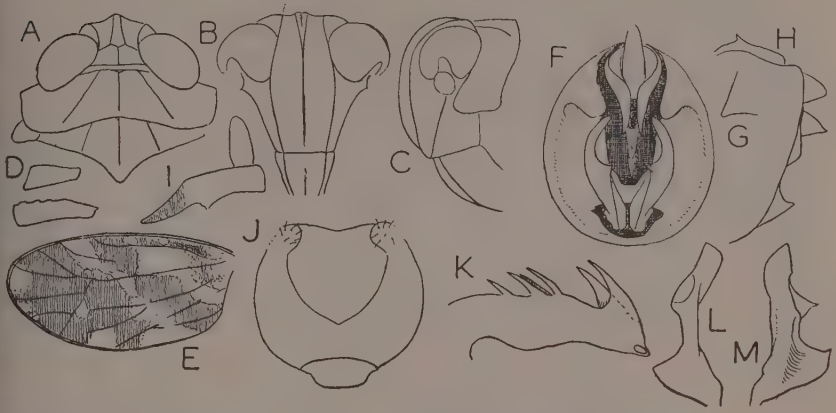

Fig. 52.—*Nesosydne lanista* sp. n. : A, head and thorax ; B, frons and clypeus ; C, head in profile ; D, first and second segments of antenna ; E, tegmen ; F, male genitalia, posterior view ; G, laterodorsal angle of pygofer, lateral view ; H, male genitalia, left side ; I, anal segment of male, right side ; J, diaphragm of pygofer, posterior view ; K, aedeagus, left side ; L, M, posterolateral and lateral views of genital styles.

Marquesas Is. : Nukuhiva. Holotype and 12 ♂, 6 ♀ and 9 nymphs, Tapuaooa, 2750–3100 feet, 3.xi.1929 (*Mumford and Adamson*) ; 17, 18.vi.1931 (*Le Bronnec and Tauraa*) ; Tevanui : Toovii, 2000 feet, 27.x.1929, on *Piper latifolium* (*Mumford and Adamson*) ; Hitikau Ridge, 2900 feet, Ua Huka, 4.iii.1931, on *Weinmannia* (*Le Bronnec and Tauraa*) ; Tauheeputa, Ua Huka, 1770 feet, 23.iii.1931, on *Sida* (*Le Bronnec and Tauraa*). Holotype male from Tapuaooa.

This species is distinguished by the proportions of the head, by coloration and by structural details of the male genitalia.

Subgeneric groups of Nesosydne *in South-Eastern Polynesia*

Rapa : A single compact group characterised by koeliopterous tegmina and a median process above the orifice of the diaphragm of the pygofer.

N. ozomene, *N. satyrion*, *N. sophonisba*, *N. panthus*, *N. otus* and *N. soracte*.

Society Is. : Two distinctly separated species, one with a short first antennal segment and the other with a moderately long first segment.

N. remmius and *N. scorpinaca*.

Marquesas Is. ; (1) A group characterised by brachypterous tegmina and an aedeagus with a few long spinose processes dorsally near apex.

N. agenor, *N. latona*, *N. cyane*, *N. lanista* and *N. sorix*.

(2) A group characterised by brachypterous tegmina, an aedeagus encircled with small teeth, and lateral pronotal carinae which do not reach the hind margin.

N. orphne, *N. melampus*, *N. oroanda*, *N. acastus*, *N. dinomache*, *N. helicaon*. *N. siderion* may be rather distantly associated with this group.

(3) Five isolated species, *N. linus*, *N. elatus*, *N. cheesmanae*, *N. clitarchus* and *N. cleanthes*.

If each main segregate is regarded as having been derived from a single immigrant, then the number of original immigrants is as follows: Rapa: 1; Society Is.: 2; Marquesas Is.: 6.

If the classification of Hawaiian Alohine genera given by Zimmerman is followed it will be noted that one species in the Marquesas exhibits a combination of "generic" characters unknown in Hawaii, these being a short first antennal segment combined with brachypterous tegmina. This could well be from the same stock as *Nesothoë*, as the development of brachyptery is, in itself, not of generic significance.

Genus *Aloha* Kirkaldy

Aloha Kirkaldy, 1904, *Entomologist* **37**: 177. Haplotype, *Aloha ipomoeae* Kirkaldy, 1904, *loc. cit.*: 177.

Aloha lycurgus sp. n. (Fig. 53, A–I)

Vertex longer in middle line than broad at base (1·7 : 1), rounding subacutely into frons, as wide at base as at apex, posterior margin transverse, lateral margins parallel, apical margin convex with median carinae slightly projecting, Y-shaped carina moderately distinct, fine, submedian carinae distinct, apposed but not completely united at apex of vertex;

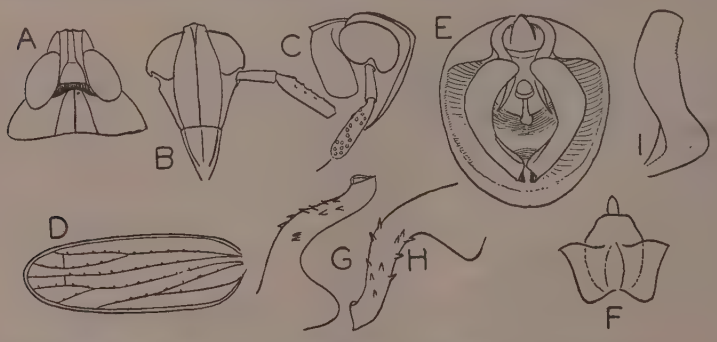

Fig. 53.—*Aloha lycurgus* sp. n.: A, vertex and pronotum; B, frons, clypeus, and right antenna; C, head in profile; D, tegmen; E, male genitalia, posterior view; F, anal segment of male, ventral view; G, aedeagus, left side; H, aedeagus, right side; I, genital style.

frons longer in middle line than broad (2·2 : 1), much narrower at base than at apex, widest at middle, lateral margins subangulately convex, disc only very feebly hollowed out longitudinally near lateral margins, 2 carinae, fused into a single carina, along middle line; antennae reaching to level of apex of clypeus, basal segment fully 3 times as long as broad, second segment longer than first (1·25 : 1). Pronotum with disc about as long as broad,

lateral margins of disc straight, diverging caudad, attaining hind margin. Post-tibial spur with 8 teeth. Tegmina reaching to apex of abdomen, narrowly rounded apically, $Sc + R$ and Cu_1 forked three-fifths of length of tegmen from base, M simple, claval veins uniting at basal quarter of tegmen, claval suture and vein Cu_2 absent. Wings present, rudimentary, reaching to fourth visible abdominal tergite.

Stramineous; intercarinal areas of frons and clypeus and some sublateral suffusion on abdominal tergites dilute fuscous. Tegmina hyaline, venation stramineous, sometimes a small fuscous spot on R at apical margin.

Anal segment of male short, ring-like, ventroapical margins inflected mesad until they almost meet, then produced ventrad and laterad throughout their length in a pair of broad lobes, sinuate on their distal margin and acutely and shortly produced at one angle. Pygofer with posterior opening longer dorsoventrally than broad, each laterodorsal angle strongly produced caudad in a rather narrowly triangular lobe, slightly curved mesad distally, bluntly rounded at apex, diaphragm with dorsal margin more or less transverse, devoid of sclerotised armature. Aedeagus moderately long, tubular, strongly sinuate, produced ventrally at base in a rounded lobe, sparsely ornamented laterally with stout teeth, as figured, orifice terminal. Genital styles moderately long, shallowly curved, slightly expanding distad, outer margin convex, inner margin concave, apical margin convex-truncate.

Male: length, 3·6 mm.; tegmen, 2·9 mm. *Female:* length, 4·0 mm.; tegmen, 3·1 mm.

Marquesas Is.: Hiva Oa. Holotype ♂ and 1 ♀, Kaava Ridge, 2750 feet, 6.i.1932, on ferns (*Le Bronnec*).

The structure of the male genitalia leaves no doubt that this species and *A. majuma* (described below) from Temetiu are congeneric. In the latter species the two carinae on the frons are separate throughout, though close: in *A. lycurgus*, however, the carinae are definitely fused into a single unit for most of their length.

Aloha majuma sp. n. (Fig. 54, A–I)

Vertex longer in middle line than broad at base (2·3 : 1), rounding subacutely into frons, a little wider at base than at apex, posterior margin transverse, lateral margins straight, feebly converging distad, apical margin convex with median carinae projecting, Y-shaped carina moderately distinct, fine, submedian carinae distinct, passing separately

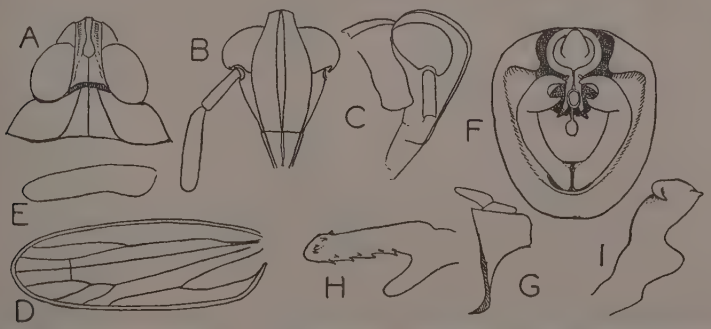

Fig. 54.—*Aloha majuma* sp. n.: A, vertex and pronotum; B, frons, clypeus, and right antenna; C, head in profile; D, tegmen; E, wing; F, male genitalia, posterior view; G, anal segment of male, right side; H, aedeagus, right side; I, genital style.

on to frons ; frons longer in middle line than broad (2·1 : 1), much narrower at base than apex, widest at middle, lateral margins concave in basal half, convex in distal half, disc only feebly hollowed out longitudinally near lateral margins, 2 distinct carinae along middle line, very close together ; antennae reaching to middle of labrum, basal segment 3 times as long as broad, second segment longer than first (1·5 : 1). Pronotum with disc about as long as broad, lateral carinae of disc straight, diverging caudad, attaining hind margin. Post-tibial spur with 9 teeth. Tegmina reaching to apex of abdomen, narrowly rounded apically, *Sc* + *R* and Cu_1 forked distad of middle, *M* simple, claval veins uniting about one-third from base, claval suture and vein Cu_2 absent. Wings present, rudimentary, reaching to fourth visible abdominal tergite.

Uniformly pale stramineous ; abdominal tergites suffused with very dilute fuscous sublaterally. Tegmina hyaline, veins stramineous, a small spot at apical margin between *R* and *M* fuscous in female.

Anal segment of male rather short, almost tubular, ventrobasal margins produced caudad in a pair of short and stout curved spinose processes. Pygofer with posterior opening longer dorsoventrally than broad, each laterodorsal angle strongly produced caudad in a rounded lobe, weakly inflected mesad distally ; diaphragm with dorsal margin more or less transverse, medially not sclerotised and devoid of armature. Aedeagus moderately long, tubular, almost straight, a finger-like process arising ventrally near base directed ventrocaudad, main limb with a double row of teeth along middle line ventrally (8 teeth in all), orifice terminal. Genital styles as figured.

Male : length, 3·6 mm. ; tegmen, 2·9 mm. *Female :* length, 4·5 mm. ; tegmen, 3·2 mm.

Marquesas Is. : Hiva Oa. Holotype ♂ and 1 ♀, Temetiu summit, 4160 feet, 20.i.1932, on *Cyrtandra* (*Le Bronnec*).

This species closely resembles *A. lycurgus*, and is distinguished by the pale frontal disc and the presence of two distinct median carinae, by the relatively longer vertex and by the shape of every element of the male genitalia.

Genus *Nesodryas* Kirkaldy

Nesodryas Kirkaldy, 1908, *Proc. Hawaii. ent. Soc.* 1 : 203. Orthotype, *Nesodryas freycinetiae* Kirkaldy, 1908, *loc. cit.* : 203.

Nesodryas oenone sp. n. (Fig. 55, A–I)

Vertex longer in middle line than broad at base (2 : 1), meeting frons almost rectangulately, as wide at apex as at base, posterior margin transverse, lateral margins parallel, anterior margin transverse with median carina projecting, Y-shaped carina present, but its medial limb obsolete, submedian carinae prominent, united just distad of middle of vertex ; frons longer in middle line than broad (2 : 1), as wide at apex as at base, lateral margins convex, disc only very shallowly hollowed out longitudinally near lateral margins, median carina simple, strongly elevated, in profile strongly incurved to frontoclypeal suture ; antennae reaching to level of middle of clypeus, basal segment distinctly longer than broad (1·8 : 1), second segment longer than first (2 : 1). Pronotum with disc about as long as broad, lateral carinae of disc straight to shallowly convex, diverging caudad, attaining hind margin ; mesonotal disc narrow, with lateral margins straight, weakly diverging caudad. Post-tibial spur with 6 or 7 teeth. Tegmina much surpassing apex of abdomen, broadly rounded at apex, *Sc* + *R* forked approximately two-sevenths from base of tegmen, *M* simple to nodal line, *R* closely approaching *M* at nodal line, Cu_1 forked near middle of tegmen, its anterior branch approaching *M* at nodal line, claval suture distinct, each claval vein separately longer than common stalk, the latter entering commissural margin some distance before apex, commissural margin of clavus narrowly foliately elevated. Wings present, almost as long as tegmina.

Uniformly pale stramineous. Tegmina with a narrow linear mark on commissural margin at point of entry of claval vein, and a dilute suffusion over veins near apical margin, fuscous. Wings hyaline, powdered white, with fuscous veins.

Anal segment of male short, ring-like, latero-apical angles not produced, apical margin broadly convex. Pygofer with posterior opening longer dorsoventrally than broad, latero-apical angles little produced, inflected mesad, posterior margin obliquely incised at middle, an almost semicircular medioventral process present; diaphragm with dorsal margin

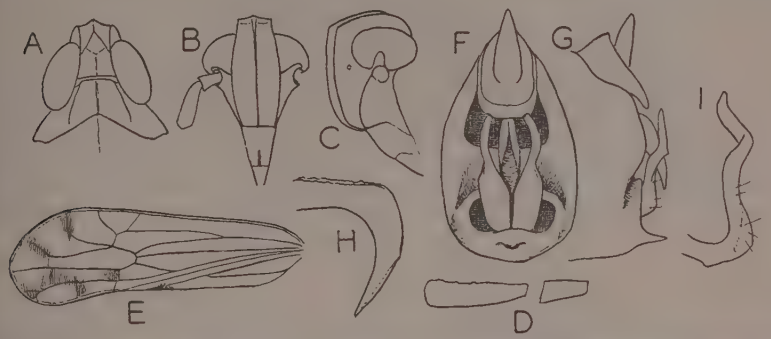

FIG. 55.—*Nesodryas oenone* sp. n.: A, vertex and pronotum; B, frons, clypeus, and right antenna; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, male genitalia, lateral view; H, aedeagus, left side; I, genital style.

transverse, devoid of armature. Aedeagus moderately long, tubular, strongly decurved ventrad in distal half, acuminate at apex, dorsal margin irregularly flattened in basal half, orifice elongate-lenticular, terminal. Genital styles moderately broad in basal half, slender and tapering distally, as figured.

Female similar in general appearance to male.

Male: length, 3·1 mm.; tegmen, 3·8 mm. *Female:* length, 3·5 mm.; tegmen, 4·3 mm.

MARQUESAS IS.: Hiva Oa. Holotype and 5 ♂ and 8 ♀, Kaava Ridge, 2800 feet, 7.i.1932, on leaves of *Pandanus* (*Le Bronnec*).

This species is well distinguished by the strongly projecting median carina of the frons and by the long, distally expanding tegmina, bluntly rounded at the apex, as well as by the laterally grooved pygofer and the large anal segment of the female.

Nesodryas laocoon sp. n. (Fig. 56, A–H)

Vertex broader at base than long in middle line (1·1 : 1), rounding into frons distally, as wide at apex as at base, posterior margin transverse, lateral margins distinctly concave, anterior margin convex with median carina projecting, Y-shaped carina distinct, submedian carinae passing separately on to frons; frons longer in middle line than broad (1·1 : 1), widest at middle, lateral margins rather strongly convex, disc not hollowed out near lateral margins, a row of about 5 large pustules inside each lateral margin; median carina simple distally, forked in basal quarter, not strongly elevated above level of disc; antennae reaching to level of middle of clypeus, basal segment as long as broad, second segment 1·6 times as long as first. Pronotum with disc broader at base than long in middle (2·2 : 1),

lateral margins straight, diverging caudad, weakly attaining hind margin. Post-tibial spur with 5 or 6 teeth. Tegmina brachypterous, coriaceous, overlapping only base of abdomen, apical margin transverse, venation irregular. Wings absent.

Uniformly yellowish-brown. Tegmina subopaque, yellowish-brown.

Anal segment of male small, short, ring-like, lateroapical angles each produced ventrad in a rather long spinose process. Pygofer with posterior opening longer dorsoventrally

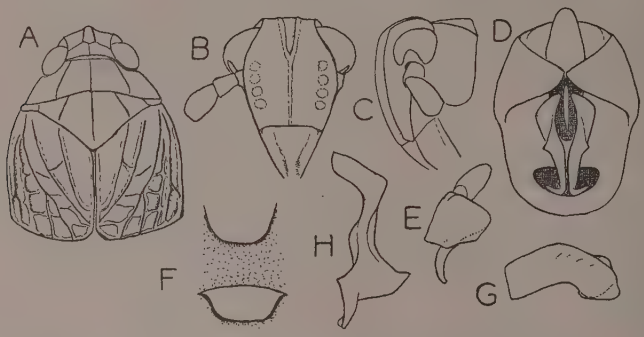

FIG. 56.—*Nesodryas laocoon* sp. n.: A, head, thorax and tegmina; B, frons, clypeus, and right antenna; C, head in profile; D, male genitalia, posterior view; E, anal segment of male; F, middle portion of pygofer; G, aedeagus, left side; H, genital style.

than broad, laterodorsal angles broadly produced, inflected mesad; diaphragm with dorsal margin concave, devoid of sclerotised ornamentation. Aedeagus short, tubular, slightly decurved distad, orifice apparently dorsoapical, no spinose ornamentation present. Genital styles moderately long, broad at base, rather slender distally, angulately bent mesodorsad in apical third.

Male: length, 2·9 mm.

MARQUESAS IS.: Hiva Oa. Holotype ♂, Matauuna, 3700 feet, 4.iii.1930, taken among dry leaves (*Mumford and Adamson*).

This species is distinguished by the proportions of the head, by coloration and by the shape of the male genitalia. The combination of a short first antennal segment and brachypterous tegmina is, at present, unparallelled in Pacific Alohini. If the tegmina were long this species would fall into *Nesothoë* on account of its relatively stout form and the apparent absence of the genitalic features of strict *Nesodryas*.

Genus *Leialoha* Kirkaldy

Leialoha Kirkaldy, 1910, *Fauna Hawaiiensis, Suppl.*: 579. Orthotype, *Aloha* (*Leialoha*) *naniicola* Kirkaldy, 1910, *loc. cit.*: 580.

Leialoha cajeta sp. n. (Fig. 57, A–J)

Vertex longer in middle line than broad at base (1·5 : 1), evenly rounding into frons, as broad at apex as at base, or a little broader, posterior margin sinuately transverse, lateral margins shallowly concave, apical margin transverse with submedian carinae strongly projecting, Y-shaped carina weak but distinct, submedian carinae prominent, passing separately on to frons; frons longer in middle line than broad (2 : 1), widest at middle,

lateral margins convex, disc shallowly hollowed out longitudinally between and laterad of submedian carinae, submedian longitudinal carinae meeting only at apex; antennae reaching scarcely to level of middle of clypeus, basal segment little longer than broad, if at all, second segment 2·5 times as long as first. Pronotum with disc broader than long, lateral carinae of disc straight, diverging caudad, not attaining hind margin. Post-tibial spur with 8 teeth. Tegmina much surpassing apex of abdomen, deeply rounded apically, $Sc + R$ forked at middle of tegmen, M simple to nodal line, Cu_1 forked level with $Sc + R$ fork, claval suture present, claval veins united about one-third from base of tegmen, each vein separately longer than the common stem. Wings present, much surpassing abdomen.

Castaneous-piceous; antennae, labrum, rostrum, procoxae and mesocoxae except basally, legs, lateral areas of abdomen, male anal segment and posterior margins of pygofer, stramineous. Tegmina hyaline, a broad suffusion along middle from base almost to nodal line, touching claval margin distally, and a suffusion apically in M, fuscous, veins concolorous. Wings hyaline, faintly powdered white, with fuscous veins.

Anal segment of male short, ring-like, apical margin transverse, lateroapical angles produced ventrad in a pair of long slender spinose processes. Pygofer with posterior opening longer dorso-ventrally than broad, laterodorsal angles obtuse, not produced, diaphragm

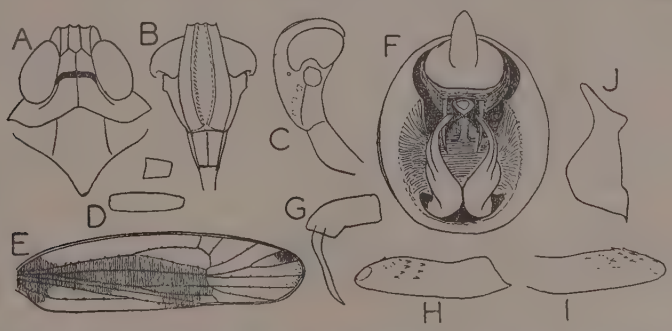

Fig. 57.—*Leialoha cajeta* sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, first and second segments of antenna; E, tegmen; F, male genitalia, posterior view; G, anal segment of male, right side; H, I, aedeagus, right and left side, dotted teeth seen by transparency; J, genital style.

with dorsal margin convex at middle, thickened, vertically medially carinate, pigmented and polished. Aedeagus short, tubular, obliquely truncate apically with orifice terminal, facing dorsocaudad, a tract of minute teeth in dorsal half of aedeagus near its middle. Genital styles rather short, shaped as figured.

Female in general appearance similar to male.

Male: length, 3·0 mm.; tegmen, 3·6 mm. *Female:* length, 4·0 mm.; tegmen, 4·1 mm.

Marquesas Is.: Hiva Oa. Holotype and 73 ♂, 115 ♀ and 28 nymphs, Temetiu ridge, 3900 feet, summit, 4160 feet, and slope north of summit, 3860 feet, 27.xii.1930, 14, 19, 21.i.1932, on *Reynoldsia*, *Cyrtandra*, *Rapanea*, *Metrosideros collina*, *Cheirodendron* and *Weinmannia parviflora* (*Le Bronnec*); Feani Ridge, 3900 feet, 19, 21.i.1932, on *Alstonia* (*Le Bronnec*). Holotype from Temetiu.

This species is distinguished by its bold colour pattern, by the twin carinae on the frons and by structural details of the male genitalia. In some specimens the middle part of the frontal disc is stramineous between the submedian carinae.

Tribe Delphacini

Genus *Tarophagus* Zimmerman

Zimmerman, 1948, *Ins. Hawaii.* **4** : 245. Orthotype, *Megamelus proserpina* Kirkaldy.

Tarophagus proserpina (Kirkaldy)

Megamelus proserpina Kirkaldy, 1907, *Bull. Hawaii. Sug. Ass. ent. Ser.* **3** : 147.

Cook Is. : Rarotonga, 1 ♂ and 1 ♀, Avana Valley, 5.viii.1929, on taro (*G. P. Wilder*).

Society Is. : Raiatea. 2 ♂, 2 ♀ and a nymph, 26.ii.1927, on taro (*J. W. Moore*).

Genus *Peregrinus* Kirkaldy

Kirkaldy, 1904, *Entomologist* **37** : 175. Orthotype, *Delphax maidis* Ashmead.

Peregrinus maidis (Ashmead)

Delphax maidis Ashmead, 1890, *Psyche, Camb., Mass.* **5** : 323.

Society Is. : Tahiti. 11 ♂ and 26 ♀, Fautaua Valley, 7.iii.1934, in legume pods ; Arihiri, Pare, 8.iii.1934, Tiupi Bay, Papeari, 28.iii.1934, Blue Lagoon, Papeete, 1.iii.1934, on the seashore ; Blue Lagoon Hotel, Papeete, 26.xi.1934 (all *E. C. Zimmerman*) ; Papeete, 19.ii.1927 (*G. P. Wilder*).

Pitcairn Is. : 2 ♂ and 7 ♀, south side, 700–900 feet, 14.vi.1934, on grasses and low herbage (*E. C. Zimmerman*).

Genus *Chloriona* Fieber

Fieber, 1866, *Verh. zool.-bot. Ges. Wien*, **16** : 522. Logotype, *Delphax unicolor* Herrich-Schaeffer, 1835, *Nom. Ent.* **1** : 66.

Subgenus *Sogatella* Fennah

Fennah, 1956, *Proc. Calif. Acad. Sci.* (4), **28** (13) : 471. Orthotype, *Delphax furcifera* Horvàth, 1899. *Term. Fuzetek.* **22** : 372.

Chloriona (*Sogatella*) *eupompe* (Kirkaldy)

Delphax eupompe Kirkaldy, 1907, *Bull. Hawaii Sug. Ass. ent. Ser.* **3** (1) : 162.

Rapa : 37♂ and 1 ♀, Mt. Taga, 800 feet, 12.vii.1934, on grasses and low herbage ; Mt. Tautautu, north-west slope, 700–800 feet, 9.vii.1934 ; near Ahurei, 50–200 feet, 16.vii.1934 ; Maitua, 300–800 feet, 2, 10.vii.1934 ; Mt. Ororangi, north slope, 200–400 feet, 3.vii.1934 (*All E. C. Zimmerman*).

Austral Is. Rurutu I. : 6 ♂, Mt. Manureva, 1000–1200 feet, 28, 29.viii.1934, sweeping grasses (*E. C. Zimmerman*).

Society Is. Raiatea : 2 ♂, Fetuna, iii.1955 (*N. L. H. Krauss*) ; Tahiti ; 1 ♂, Arihiri, Pare, 10.iii.1934 (*E. C. Zimmerman*).

Moorea : 3 ♂, Tehau Pt., 10 feet, 24.ix.1934 (*E. C. Zimmerman*).

Swains I. : 2 ♂, 6.iv.1935 (*E. H. Bryan Jr.*).

Chloriona (*Sogatella*) *kolophon* Kirkaldy

Delphax kolophon Kirkaldy, 1907, *Bull. Hawaii Sug. Ass. ent. Ser.* **3** (1) : 157.

Mangareva Is. Mangareva I. : 3 ♂ and 2 ♀, near Rururu, 30 feet,

25.v.1934, on grasses ; near chapel, Pt. Teone Kura, 300 feet, 25.v.1934, on grasses ; near convent, 300 feet, 24.v.1934, on grasses (*All E. C. Zimmerman*).

Society Is. Raiatea : 1 ♂, Fetuna, iii.1955 (*N. L. H. Krauss*).

Marquesas Is. Hiva Oa : 3 ♂, Avaoa Valley, 1350 feet, 4.i.1932, on *Ageratum conyzoides* (*Le Bronnec*).

Pitcairn I. : 1 ♂, south side, 700–900 feet, 14.vi.1934, on grasses (*E. C. Zimmerman*).

Chloriona (*Sogatella*) *paludum* (Kirkaldy)

Kelisia paludum Kirkaldy, 1910, *Fauna Hawaiiensis*, **2** (6) : 579.

Cook Is. Aitutaki : 2 ♂ and 1 ♀, Akaiami, iii.1955 (*N. L. H. Krauss*).

Austral Is. Rimatara I. : 1 ♂, Maraitere, 25 feet, 5.ix.1934, on grasses and low herbage (*E. C. Zimmerman*).

Mangareva Is. Aukena I. : 1 ♂, Koiorao, 29.v.1934 (*E. C. Zimmerman*).

Genus *Sardia* Melichar

Sardia Melichar, 1903, *Homopteren-Fauna von Ceylon* : 96. Haplotype, *Sardia rostrata* Melichar, *op. cit.*

Sardia pluto (Kirkaldy)

Hadeodelphax pluto Kirkaldy, 1906, *Bull. Hawaii Sug. Ass. ent. Ser.* **1** (9) : 313.

Society Is. Raiatea : 1 ♀, 1926–27 (*J. W. Moore*).

Tahiti : 15 ♂ and 11 ♀, Tiupi Bay, Papeari, 19.iii, 3.v.1934, on grasses ; Blue Lagoon, Papeete, 1.iii.1934, on seashore ; one and a half miles north-east of Papeete, about 25 feet, 2.iii.1934, on grasses ; Arihiri, Pare, 10.iii.1934 (*All E. C. Zimmerman*).

Delphacodes Fieber

Fieber, 1866, *Verh. zool.-bot. Ges. Wien* **16** : 524. Logotype, *Delphax mulsanti* Fieber, 1866, *loc. cit.* : 526.

Delphacodes dryope (Kirkaldy)

Delphax dryope Kirkaldy, 1907, *Bull. Hawaii. Sug. Ass. ent. Ser.* **3** : 154.

Austral Is. Raivavae : 3 ♂ and 7 ♀, near Ahuoivi Pt., 9.viii.1934 ; Raiurua, 5 feet, 5.viii.1934 ; Anatomu, 5–10 feet, 12.viii.1934 ; Motu Tehau, 5 feet, viii.1934, sweeping shrubs (*All E. C. Zimmerman*).

Mangareva Is. : 3 ♂ and 12 ♀, Akamaru I., north side, 29.v.1934, on grasses ; Mangareva I., near Rururu, 300 feet, 25.v.1934 ; Aukena I., north-west side, 25.v.1934, 0–50 feet, on grasses (*All E. C. Zimmerman*).

Society Is. Moorea : 4 ♂ and 5 ♀, Tehau Pt., 5 feet, 24.ix.1934, on grasses and low herbage ; Tahiti, 3 ♂ and 1 ♀, Arihiri, Pare, 10.iii.1934 (*E. C. Zimmerman*).

Delphacodes lazulis (Kirkaldy)

Delphax lazulis Kirkaldy, 1907, *Bull. Hawaii. Sug. Ass. ent. Ser.* **3** : 155.

Austral Is. Raivavae : 1 ♂, Motu Tehau, 5 feet, 11.viii.1934, sweeping grasses and low herbage (*E. C. Zimmerman*).

Delphacodes matanitu (Kirkaldy)

Delphax matanitu Kirkaldy, 1907, *Bull. Hawaii. Sug. Ass. ent. Ser.* **3** : 155.

Pitcairn I. : 1 ♂, south side, 700–900 feet, 14.vi.1934, on grasses (*E. C. Zimmerman*).

Delphacodes muirella Metcalf

Delphacodes muirella Metcalf, 1943, *Gen. Cat. Hemipt.* Fasc. 4 (3) : 470 (for *D. pacifica* Muir, 1927, *nom. praeocc.*).

Rapa : 3 ♂ and 16 ♀, a quarter of a mile east of Area, 10 feet, 1.vii.1934, on grasses and low herbage ; near Ahurei, 50–200 feet, 16.vii.1934, on grasses and low herbage ; Maitua, 700–800 feet, 2.vii.1934 ; Mt. Perahu, east ridge, 1200–1500 feet, 21.vii.1934, on *Lautea* ; Mt. Tautautu, north-west slope, 700–800 feet, 9.vii.1934, on grasses and low herbage ; Morongota, 700–800 feet, 11.vii.1934 (*All E. C. Zimmerman*).

Austral Is. Rurutu I. : 7 ♂ and 25 ♀, Mt. Manureva, 1200 feet, 28.viii.1934, on grasses and low herbage ; south-west slope, 1100 feet, 29.viii.1934, on *Blechnum* ; Mt. Teape, south slope, 1000 feet, 2.ix.1934, on *Blechnum* (*All E. C. Zimmerman*).

Raivavae : 5 ♀, Motu Tehau, 5 feet, 11.viii.1934, on grasses and low herbage (*E. C. Zimmerman*).

Tubuai I. : 1 ♂, Tapapatauai Islet, 5 feet, 19.viii.1934 (*E. C. Zimmerman*).

Society Is. Raiatea : 1 ♂ and 1 ♀, Temeharu Plateau, 1200–1600 feet, 5.x.1934, on *Metrosideros* ; Tetaro Islet, 3 feet, 4.x.1934, on grasses (*E. C. Zimmerman*).

Moorea : 2 ♂, Tehau Pt., 10 feet, 24.ix.1934 (*E. C. Zimmerman*).

Tahiti : 3 ♂ and 10 ♀, Blue Lagoon, Papeete, and one and a half miles north-east of Papeete, 2.iii.1934 (*E. C. Zimmerman*).

Huahine I. : 1 ♀, south-east end, Haapu Bay, 50–500 feet, 3.x.1934 (*E. C. Zimmerman*).

Tuamotu Is. Tepoto I. : 26 ♂ and 14 ♀, 16.v.1934 (*E. C. Zimmerman*).

Pitcairn I. : 12 ♂ and 18 ♀, north side, 13.vi.1934 ; south side, 700–900 feet, 14.vi.1934, on grasses (*E. C. Zimmerman*).

Delphacodes ixion sp. n. (Fig. 58, A–I)

Vertex as long in middle line as broad at base, rounding subrectangulately into frons as wide at apex as at base, posterior margin transverse, lateral margins parallel, apical margin transverse with median carina prominent, Y-shaped carina present, weak, sub-median carinae passing separately on to frons ; frons in middle line longer than broad (2·4 : 1), widest one-third from base, lateral margins convex, diverging to level of lower margin of eyes, then weakly converging to frontoclypeal suture, median carina simple, forked at extreme base ; antennae reaching to level of middle of clypeus, basal segment slightly longer than broad (1·3 : 1), second segment longer than first (2·2 : 1). Pronotum with disc broader at base than long in middle line (2·4 : 1), lateral carinae diverging laterad caudad, not nearly attaining hind margin. Post-tibial spur with 9 teeth. Tegmina must surpassing abdomen, $Sc + R$ forked a little basad of middle, M simple to nodal line, C forked about middle of tegmen, each claval vein separately about as long as common stalk. Wings fully developed.

Uniformly stramineous, sometimes with head dilute fuscous with carinae pallid, thoracic pleurites, abdomen and male genitalia fuscous. Tegmina stramineous-hyaline with apical venation faintly brown. Wings hyaline, powdered white, with fuscous veins.

Anal segment of male, short, ring-like, apical margin moderately short, transverse, latero-apical angles strongly produced ventrad in a pair of moderately long, stout spinose processes. Pygofer with posterior opening a little longer dorsoventrally than broad, latero dorsal angles feebly produced and inflected, not acuminate at apex; diaphragm with

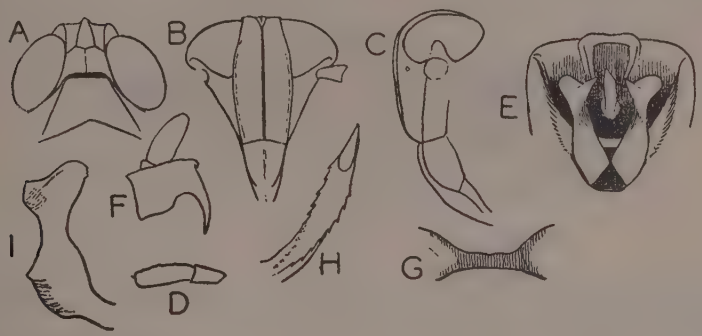

FIG. 58.—*Delphacodes ixion* sp. n.: A, vertex and disc of pronotum; B, frons, clypeus, and left antenna; C, head in profile; D, antenna; E, male genitalia, posterior view; F, anal segment, left side; G, middle portion of diaphragm; H, aedeagus, left side; I, genital style.

dorsal margin broadly concave, median portion very narrow, sclerotised, heavily pigmented and polished. Aedeagus moderately long, curved upward from base, directed dorso-caudad, narrow at apex, orifice terminal on left, a row of teeth from dorsal margin at apex down left side to ventral margin and a row of spines along lower right margin. Genital styles moderately long, twisted at middle, shaped as figured.

Male: length, 2·0 mm.; tegmen, 2·8 mm. *Female:* length, 3·0 mm.; tegmen, 3·6 mm.

COOK IS.: Aitutaki. Holotype and 8 ♂, 5 ♀ and 1 mutilated specimen, iii.1955 (*N. L. H. Krauss*).

This species is distinguished by the proportions of the head and by the shape of the male genitalia: the median sclerotised portion of the diaphragm is exceptionally narrow.

Delphacodes choroebus sp. n. (Fig. 59, A–E)

Vertex as long in middle line as broad at base, rounding apically into frons, a little narrower at apex than at base, posterior margin transverse, lateral margins very shallowly concave, apical margin transverse with median carina projecting, Y-shaped carina present, submedian carinae uniting at apex of vertex; frons in middle line longer than broad (nearly 2·2 : 1), widest at middle, lateral margins shallowly concave between eyes, almost parallel in middle portion and feebly incurved distally, median carina simple; antennae reaching to level of middle of clypeus, basal segment longer than broad (1·7 : 1), second segment longer than first (1·6 : 1). Pronotum with disc broader at base than long in middle line (2·2 : 1), lateral carinae diverging caudad, weakly attaining hind margin. Post-tibial spur with 11 teeth along hind margin. Tegmina only slightly surpassing apex of abdomen,

$Sc + R$ and Cu_1 forked slightly distad of middle, M simple to nodal line, vein Cu_2 present, claval suture obsolete, each claval vein separately longer than common stalk. Wings absent.

Dilute fuscous; carinae of head, pronotum and mesonotum pallid stramineous, legs, abdomen dorsally at base, pygofer dorsally and anal segment testaceous-stramineous. Tegmina hyaline, slightly tinged yellow, a spot on margin at claval apex and a suffusion along apical veins, castaneous-fuscous.

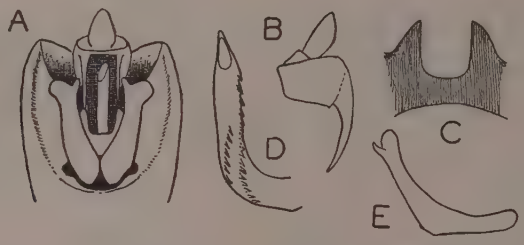

FIG. 59.—*Delphacodes choroebus* sp. n.: A, male genitalia, posterior view; B, anal segment, left side; C, middle portion of diaphragm; D, aedeagus, right side, teeth in broken line seen by transparency; E, genital style.

Anal segment of male short, ring-like, apical margin transverse, moderately broad latero-apical angles strongly produced ventrad in a pair of very long laterally-compressed spinose processes. Pygofer with posterior opening as broad as long dorsoventrally, anal emargination wide and deep, laterodorsal angles moderately produced caudad; diaphragm with dorsal margin deeply concave, median portion sclerotised, pigmented and polished, strongly produced dorsad on each side of middle in a narrowly triangular lobe. Aedeagus rather long, tubular, in side view curved at base, straight distally, orifice on left at apex, a complete sinuately oblique row of teeth on each side from dorsal margin at apex to ventral margin at base. Genital styles only moderately long, narrowing slightly distad, outer apical angle roundly produced, inner apical angle shortly acutely produced.

Male (koiliopterous): length, 3·0 mm. *Female* (koiliopterous): length, 3·5 mm.

MANGAREVA IS.: Holotype and 2 ♂ and 19 ♀, near Rururu, 300 feet, 25.v.1934, on grasses and low herbage (*E. C. Zimmerman*).

This species is distinguished by the proportions of the head and by the shape of the male genitalia: the shape of the dorsal margin of the diaphragm serves to identify it readily among Pacific species.

VII. Family MEENOPLIDAE Fieber

Genus *Suva* Kirkaldy

Kirkaldy, 1906, *Hawaii. Sug. Ass. ent. Ser.* **1** (9): 428. Haplotype, *Suva koebelei* Kirkaldy, 1906, *op. cit.*: 428.

Suva metagon sp. n. (Fig. 60, A–D)

Tegmina 2·7 times as long as wide. Post-tibiae with 8 teeth at apex, basal metatarsal segment with 6 teeth, second segment with 5.

Stramineous, powdered white. Tegmina hyaline, powdered milky-white, commissural margin of clavus narrowly dark fuscous, apical margin dilute fuscous.

Male genitalia as figured. Anal segment short, latero-apical angles shortly produced and deflexed in a pair of subspinose processes. Pygofer with laterodorsal angles shortly produced caudad, obtusely angulate. Aedeagus comprising a basal membranous chamber from which emerges a narrow sclerite directed caudad, a very small sclerite dorsally at base. Genital styles narrow, strongly upcurved in distal third, a large triangular lobe dorsally at middle.

Male: length, 2·9 mm.; tegmen, 3·8 mm. *Female:* length, 3·1 mm.; tegmen, 4·1 mm.

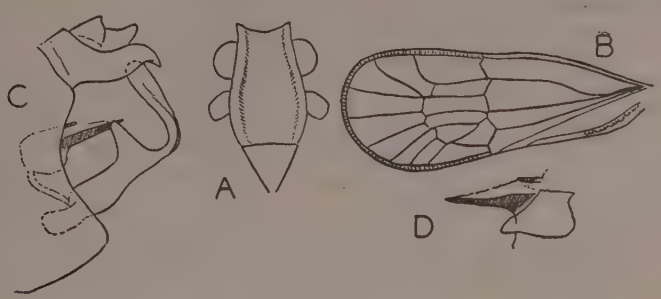

FIG. 60.—*Suva metagon* sp. n.: A, frons and clypeus; B, tegmen; C, male genitalia, left side; D, aedeagus.

SOCIETY IS.: Huahine I. Holotype and 1 ♂ and 5 ♀, Mt. Turi, north-west ridge, 1700–2100 feet, 1.x.1934 (*E. C. Zimmerman*).

This species is distinguished by characters of the male genitalia.

VIII. Family DERBIDAE Spinola

Key to Genera of Derbidae of South Eastern Polynesia[1]

[1] In this short key it has been considered preferable to use the most obvious characters, as the "tribal" character of the claval venation, which sets the Cenchreine *Lamenia* apart from the others, is difficult to interpret in the genus *Paralyricen*.

1	Subantennal process and lateral keels of pronotum absent or very small	2
–	Subantennal process present	3
2 (1)	Frons at base at least as wide as at apex, head in profile strongly produced before eyes . . . . . **Swezeyia** Kirkaldy	
–	Frons at base narrower than at apex, head in profile little produced, its anterior margin subparallel with anterior margin of eyes . . . . . **Pyrrhoneura** Kirkaldy	
3 (1)	Lateral carinae of pronotum forming a cup-like hollow curved behind antenna . . . . . **Paralyricen** Muir	
–	Lateral carinae of pronotum not as above . . . . **Lamenia** Stål	

Genus *Swezeyia* Kirkaldy

Kirkaldy, 1906, *Bull. Hawaii. Sug. Ass. ent. Ser.* 1 (9): 430. Haplotype, *Swezeyia lyricen* Kirkaldy, *op. cit.*

Swezeyia lyricen Kirkaldy. (Fig. 61, A)

Kirkaldy, 1906, *op. cit.* : 430.

Cook Is. Aitutaki : 3 ♂ and 2 ♀, Akaiami, iii.1955 (*N. L. H. Krauss*).

Society Is. Tahiti : 17 ♂ and 6 ♀, Arihiri, Pare, 16.iii.1934, on lower surface of castor bean leaves ; Apirimaue Valley, Tiupi Bay, Papeari, 18.iv.1934 (*E. C. Zimmerman*) ; Blue Lagoon, Papeete, at light (*E. C. Zimmerman*) ;

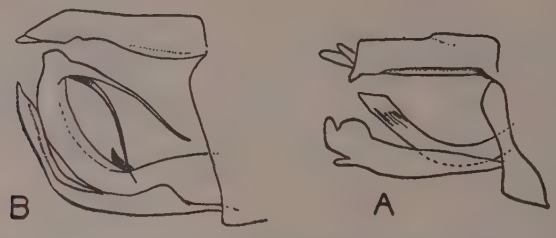

Fig. 61.—A, *Swezeyia lyricen* Kirk. : male genitalia, right side ; B, *Pyrrhoneura saccharicida* Kirk. : male genitalia, right side.

iii.1956 (*N. L. H. Krauss*) ; one and a half miles north of Papeete, 25 feet, 1.iii.1934, on Burau leaves (*E. C. Zimmerman*) ; Tiarei, iii.1955 (*N. L. H. Krauss*) ; Papenoo Valley, iii.1955 (*N. L. H. Krauss*).

Raiatea : 2 ♂, Uturoa, iii.1955 (*N. L. H. Krauss*).

There is a slight difference between the two populations. Females of the series from Aitutaki have the head relatively less produced before the eyes, while the latter appear to have a different curvature in relation to the margin of the frons.

Swezeyia maurellei Muir

Muir, 1927, *Ann. Mag. nat. Hist.* (9) **20** : 89.

Swains I. : 1 ♂ and 1 ♀, 20.viii.1940 (*E. C. Zimmerman*).

The species otherwise is known only from the type locality—Niu, Ellice Is.

Genus *Pyrrhoneura* Kirkaldy

Kirkaldy, 1906, *Bull. Hawaii. Sug. Ass. ent. Ser.* **1** (9) : 434. Haplotype, *Pyrrhoneura saccharicida* Kirkaldy.

Pyrrhoneura saccharicida Kirkaldy. (Fig. 61, B)

Kirkaldy, 1906, *Bull. Hawaii Sug. Ass. ent. Ser.* **1** (9) : 435.

Swains I. : 3 ♂ and 6 ♀, 6.iv.1935 (*E. H. Bryan Jr.*).

Tokelau Is. : 10 ♂ and 12 ♀, Fakaofo, 3.iv.1924 (*E. H. Bryan*).

Cook Is. Atiu : 2 ♂ and 1 ♀, 15.v.1925 (*G. P. Wilder*).

These populations differ from one another slightly in intensity of pigmentation, and all differ from the type population (from Viti Levu) in that the margin of the pygofer are bilaterally symmetrical and not produced caudad in a lob

Genus *Paralyricen* Muir

Paralyricen Muir, 1913, *Bull. Hawaii. Sug. Ass. ent. Ser.* **12** : 52. Orthotype, *Paralyricen jepsoni* Muir, 1913, *op. cit.* : 53.

Paralyricen tephrias sp. n. (Fig. 62, A–E)

Vertex in dorsal view narrowly triangular with apical margin incised, lateral margins not thickened.

Stramineous ; disc of frons, genae below eyes, a band down middle of clypeus, and abdominal tergites fuscous. Tegmina yellowish hyaline, powdered pallid greyish-yellow, a sublinear spot at junction of claval veins, at apex of common claval vein, a spot on base

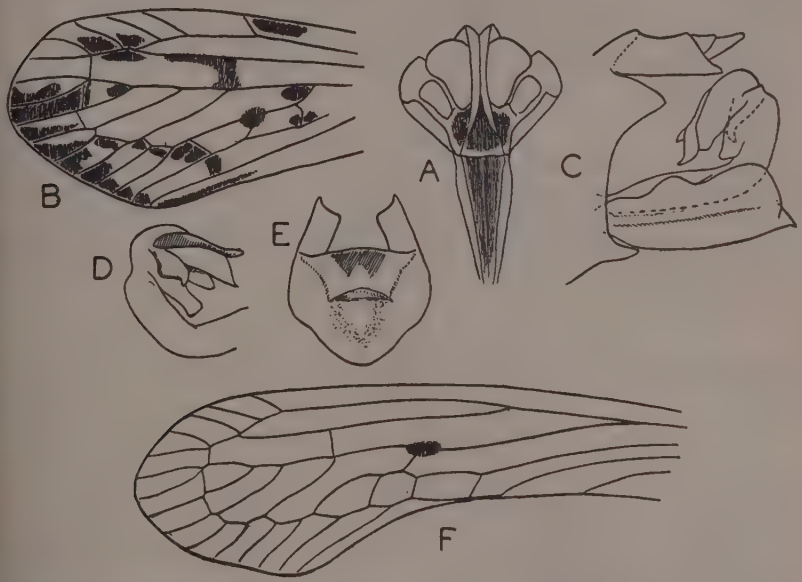

FIG. 62.—*Paralyricen tephrias* sp. n. (A–E, Cook Is.) : A, head, anterior view ; B, apical portion of tegmen ; C, male genitalia, left side ; D, aedeagus, right side ; E, pregenital sternite of female ; F, (Tahiti, Society Is.) distal part of tegmen.

of first sector of *M*, *R–M* cross-vein, a spot at apex of costal cell, and a series of spots along subapical line, and a tinge just inside apical margin, fuscous. Wings hyaline, powdered white, *Cu* at fork fuscous.

Male genitalia as figured. Anal segment short, cylindrical. Pygofer with laterodorsal angles moderately angulately produced caudad. Aedeagus long, tubular, curved dorsad distally and reflected cephalad, a short and very stout curved spinose process on each side apically, directed cephalad and laterad, a quadrate lobe in middle line, directed cephalad, and a subtubular process above this, produced on its dorsal margin and apex in a short blunt spinose process. Genital styles subquadrate, as figured.

Female with pregenital sternite with a median transverse ridge, distad of which surface is shallowly impressed.

Male : length, 3·9 mm. ; tegmen, 6·2 mm. *Female :* length, 3·8 mm. ; tegmen, 7·7 mm.

Cook Is.: Rarotonga. Holotype and 9 ♂ and 8 ♀, Mt. Ikurangi, 1600 feet, 15.v.1927, iii, iv.1929, on *Fitchia speciosa* (*G. P. Wilder*); Aitutaki, Akaiami, iii.1955 (*N. L. H. Krauss*).

This species is distinguished by the shape of the head and tegmina, and of the female pregenital sternite. The structure of the male genitalia appears to be remarkably uniform in this genus, and differences are usually apparent only when side-by-side comparison is possible.

Paralyricen tephrias subsp. **tahitiensis** subsp. n. (Fig. 62, F)

Frons in profile less strongly convex than in typical subspecies. Tegmina narrow in basal two-thirds, abruptly widening in distal third, so that posterior margin is markedly angulate a little distad of apex of clavus.

Coloration as in typical subspecies, but with fuscous marking on tegmina less evident.

Genitalia of both sexes similar to those of typical subspecies.

Male: length, 4·0 mm.; tegmen, 7·0 mm. *Female:* length, 4·2 mm.; tegmen, 7·7 mm.

Society Is. Raiatea: 1 ♂, 1926–27 (*J. W. Moore*). Meetia: 1 ♂, Fatia-Po, 500–1000 feet, 12.v.1934. Tahiti: Holotype of subspecies and 11 ♂ and 2 ♀, Fautaua Valley, Pare, 600–800 feet, 9.v.1934, on dead banana leaves; Apirimaue Valley, Tiupi Bay, Papeari, 18.iv.1934 (*All E. C. Zimmerman*). Holotype male of subspecies from Fautaua Valley, Pare, Tahiti.

Genus *Lamenia* Stål

Stål, 1859, *Fregatten Eugenies resa* **4**: 277. Haplotype, *Delphax caliginea* Stål.

Lamenia caliginea (Stål)

Delphax caliginea Stål, 1954, *Öfvers. Vetensk. Akad. Förh. Stockh.* **11**: 246.

Swain's Is.: 3 ♂ and 7 ♀, 6.vi.1935, 2.viii.1940 (*E. C. Zimmerman*).

Tokelau Is. Fakaofo: 2 ♂ and 1 ♀, 3.iv.1924 (*E. H. Bryan*).

Tuamotu Is. Makatea: 2 ♀, ix.1932 (*G. P. Wilder*).

Austral Is. Tubuai I.: 2 ♂ and 7 ♀, Murivahi, 10 feet, 16.viii.1934; Rautaro Islet, 5 feet, 19.viii.1934.

Society Is. Tahiti: 36 ♂ and 20 ♀, Arihiri, Pare, 5.iii.1934 (*E. C. Zimmerman*); Papeete, iii.1955 (*N. L. H. Krauss*); half a mile north-east of Papeete, 25 feet, 1.iii.1934, on *Burau* leaves (*E. C. Zimmerman*); v.1927 (*L. E. MacDaniels*); Fautaua Valley, 13.iii.1934 (*E. C. Zimmerman*); near Onetea, 50 feet, 25.ii.1934 (*E. C. Zimmerman*); Tiupi Bay, Papeari, 3.v.1934 (*E. C. Zimmerman*); Popora, 10.iii.1927 (*G. P. Wilder*).

Raiatea: 3 ♂ and 4 ♀, Uturoa; Opoa, iii.1955 (*N. L. H. Krauss*); 1926–27 (*J. W. Moore*); Toahiva Valley, south slope, 600 feet, 7.x.1934.

Moorea: 5 ♂ and 5 ♀, Maramu Valley, 100–200 feet, 26.ix.1934 (*E. C. Zimmerman*); Paatoui Valley, 200 feet, 23.ix.1934; Mt. Teaharua, 1500–200 feet, 25.ix.1934; Urufara Valley, 200–400 feet, 22.ix.1934 (*E. C. Zimmerman*).

Huahine I.: 1 ♂, mountain west of Mt. Turi, 1500 feet, 30.ix.193 (*E. C. Zimmerman*).

Tahaa I.: 1 ♂, Mt. Purauti, valley on south-east, 500 feet, 11.x.193 (*E. C. Zimmerman*).

IX. Family Dictyopharidae Spinola

Genus **Nesolyncides** gen. n.

Body-form elongate oval, dorsoventrally compressed. Head (with eyes) distinctly narrower than pronotum, produced before eyes in a distinct cephalic process; vertex with posterior margin transverse, lateral margins subparallel between eyes, not elevated, converging distad, meeting acutely at apex, median carina present basally on disc; frons elongate with lateral margins convex at level of antennae; disc with 3 equal carinae in distal half, the lateral pair becoming elevated basad and uniting angulately at base; the median carina becoming obsolete basad; clypeus carinate medially and at margins, rostrum reaching to base of genitalia, apical segment shorter than subapical; ocelli present, antennae with second segment ovoid. Pronotum with anterior margin convex, anterior margin of disc transverse, posterior margin angulately excavate, 2 carinae at each side between eye and base of tegmen. Mesonotum broader than long, about twice as long as pronotum in middle line, tricarinate, lateral carinae concave, continuing line of lateral carinae of pronotal disc; tegulae very small, not covering basal eminence of costal margin; legs long, femora distinctly compressed, but not at all foliately expanded distally; tibiae longer than femora; post-tibiae with 6 spines laterally, 5 apically, basal metatarsal segment with 2 large and 6 or 7 small spines, second segment with 2 large and 6 small spines. Tegmina narrowly subovate, reaching to apex of abdomen, coriaceous, costal margin shallowly convex, apex deeply rounded, commissural margin straight, claval suture absent, veins prominent, more or less irregular, $Sc + R$ forked distad of middle of tegmen, M and Cu_1 forked approximately at middle, each claval vein separately shorter than common stalk, distal venation reticulate, with a tendency for supernumerary transverse veinlets to be prominent at middle of corium, less so towards base. Wings absent.

Ovipositor with 8 teeth dorsally on first valvulae. Bursa copulatrix with surface subdivided into minute hexagonal or pentagonal areas each bearing 4 or 6 granules arranged in 2 rows.

Type species, *Nesolyncides io* sp. n.

This genus is apparently nearest to *Lyncides* Stål, based on *Hiracia coquerelii* Sign. from Mayotte. It differs in the shape of the head and in the absence of a foliate expansion at the apex of the profemora. In superficial appearance *N. io* resembles a *Scolops*, but is far removed in true relationship.

Nesolyncides io sp. n. (Fig. 63, A–N)

Vertex, including cephalic process, 4·2 times as long in middle line as broad at basal margin, cephalic process straight, distinctly bent upward a little distad of eyes, where lateral margins are incurved; ocelli elevated on a short ridge between lateral margin of frons and eye.

Yellowish-brown (males) or reddish-brown (females), carinae and margins of head and thorax and spots on abdominal tergites a little lighter; approximately 7 spots distally on side of cephalic process, sides of head between antennae and eyes, and below antennae, metapleurites, and a spot on femora at apex, fuscous-piceous; 3 narrow pale testaceous transverse bands on profemora and mesofemora, and 3 fuscous transverse bands on protibiae and mesotibiae. The tegmina of same colour as body, with a fuscous-piceous mark on commissural margin at apex of clavus.

Anal segment of male rather short, broadly ovate in dorsal view. Pygofer with latera margins convex, dorsolateral angles not at all produced. Aedeagus moderately long, comprising a membranous sac supported on a pair of horizontal sclerotised rods; a pair of slender aedeagal appendages arising medially at base directed caudad along ventral

surface of aedeagus. Genital styles in side view subovate, a spinose process on dorsal margin directed dorsocephalad, and a spinose process laterally, a little below dorsal margin, directed ventrocaudad.

Female genitalia as figured.

Male: length, 8·1 mm.; tegmen, 5·0 mm. *Female:* length, 10·0 mm.; tegmen 5·8 mm.

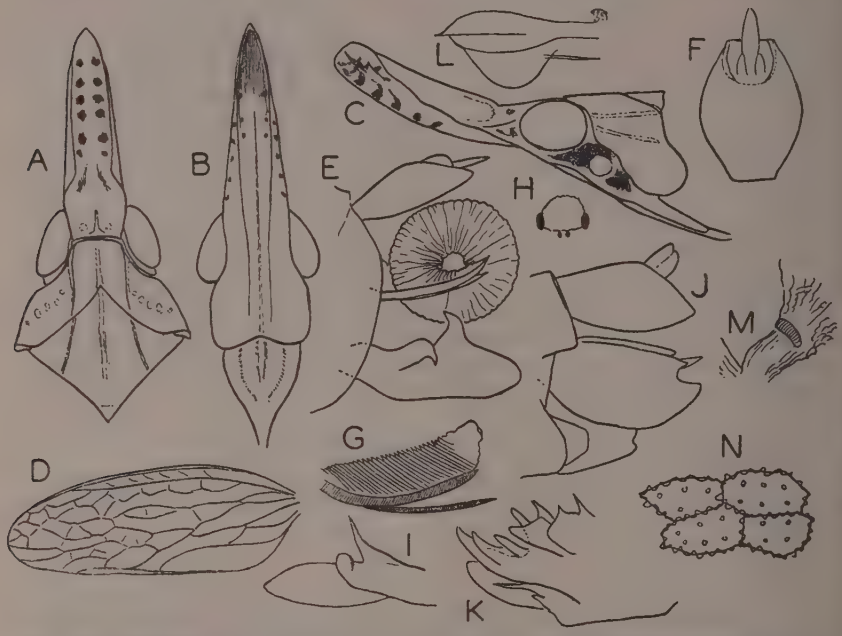

FIG. 63.—*Nesolyncides io* gen. et sp. n.: A, head and thorax; B, frons and clypeus; C, head in profile; D, tegmen; E, male genitalia, left side, aedeagal sac fully distended; F, anal segment of male, dorsal view; G, aedeagus, left side; H, diagram showing arrangement of aedeagal sclerites as seen in posterior view; I, left genital style, dorsal view; J, female genitalia, left side; K, first valvula of ovipositor, right side; L, second valvula of ovipositor, right side; M, entrance to bursa copulatrix, semidiagrammatic; N, ornamentation on surface of bursa copulatrix.

MANGAREVA IS.: Mangareva I. Holotype and 2 ♂, 4 ♀ and one nymph, Mt. Mokoto, south side, 2, 6.vi.1934, on *Asplenium nidus* (*E. C. Zimmerman, D. Anderson*).

The immature specimen agrees with the adult form in most characters, but differs markedly in lacking the cephalic process.

X. Family ISSIDAE Spinola

Genus *Atylana* Melichar

Melichar, 1906, *Abh. zool.-bot. Ges. Wien* (4) **3**: 198. Logotype, *Atylana intrusa* Melichar, *loc. cit.*: 207.

In assigning the following species to *Atylana* it has become necessary to relax the generic definition to include forms with a vertex which is broader

than long. The species discussed below all belong to a compact natural group, and their nearest relative outside Polynesia appears to be the Fijian *Atylana intrusa* Mel. They cannot be referred to the Micronesian genus *Issarius* on account of differences in the shape of the head and in genitalic structure. *Issarius*, possibly derived from *Scalabis*, is best retained as a strict concept defined by a genitalic pattern. In the Issidae of south-east Polynesia a distinctive feature is the occurrence of a pair of lobes perched, more or less flexibly, at the apex of the paired ventral marginal extensions of the phallobase, or periandrium. These, in very attenuated form, are also present in *Atylana intrusa*.

In most series from a given locality there is a moderate amount of variation in coloration, chiefly in the intensity of pigmentation, and such variation is, in part, sexual. The necessity of allowing for such variation when compiling the specific descriptions inevitably tends to obscure the fact that there is usually so high a proportion of specimens of the same appearance in a series that it is possible to distinguish between two populations at a glance, whereas the separation of two specimens, one from each series, may not be possible without genitalic dissection. The coloration described below for each species is, as far as possible, based on the commonest pattern found in the male sex, and usually is that of the type specimen.

The species discussed below are too similar to permit the construction of a simple key. The figures have been prepared to show just the features which are characteristic of the species, and are intended to facilitate comparison of each species with all the others.

The view that the populations described below belong to separate species does not rest entirely on analogy: several such populations occur side by side in the Austral Islands and in the Society Islands.

In the descriptions which follow the "median portion of the frontal disc" is intended to refer to the ovate area enclosed by the curved "intermediate" or sublateral carinae. It is measured along the middle line from the base to the frontoclypeal suture, and across the widest part: the proportions show some variation within species.

Atylana vesontio sp. n. (Fig. 64, A–F)

Vertex broader at anterior margin than long in middle line (3·4 : 1), anterior margin very feebly convex, almost transverse, frons in anterior view with basal margin very shallowly concave, median portion of disc longer than broad (1·7 : 1), lateral margins moderately diverging to below level of antennae.

Stramineous; clypeus, a triangular suffusion on lateral lobes of pronotum below eyes, thoracic pleurites, coxae and femora and abdomen, fuscous, usually incompletely; sometimes basal half of median portion of frons and granules laterad of disc, vertex, and a slight suffusion on disc of mesonotum also fuscous.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with elongate lobe followed distally by a broadly triangular lobe; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a broadly subtriangular lobe, distinctly produced cephalad at its base in a deeply rounded lobe, and produced at apex in a short curved spine; phallus comprising 3 pairs of elongate processes, the outer pair relatively stout, shallowly curved, acute at apex and strongly produced cephalad at base in a long lobe: the second pair slightly

expanding to middle, where each is feebly angulately bent, then tapering to acuminate apex; the third pair submembranous, feebly narrowed in middle portion, rounded at apex. Genital styles as figured.

Male: length, 4·5 mm.; tegmen, 4·5 mm. *Female:* length, 5·7 mm.; tegmen, 5·7 mm.

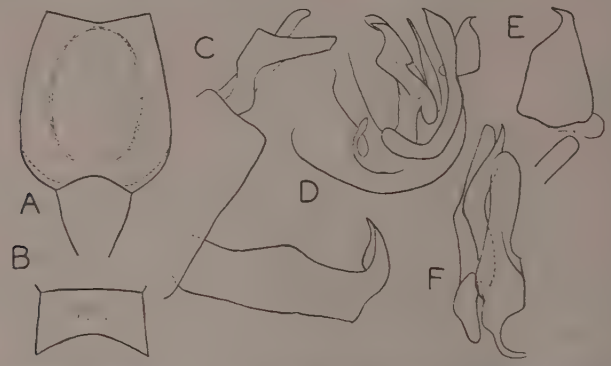

FIG. 64.—*Atylana resontio* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer and left genital style; D, aedeagus, left side; E, one of paired processes at apex of ventral margin of phallobase; F, processes of phallus, posterior view of left half only.

AUSTRAL IS.: Raivavae. Holotype and 40 ♂ and 39 ♀, Pic Rouge, 200–400 feet, south slope, 5.viii.1934, on *Alyxia*; Mt. Turivao, south-east slope, 500 feet, 13.viii.1934, on *Myoporum*: Mt. Taraia, south slope, 700 feet, 9.viii.1934, on *Myoporum*: Mt. Hiro, 1000–1300 feet, 10.viii.1934; Mt. Muanui, south slope, 400–700 feet, 6.viii.1934 (*All E. C. Zimmerman*). Holotype from Pic Rouge.

This species is distinguished by the shape of the processes of the aedeagus.

Atylana volumna sp. n. (Fig. 65, A–D)

Vertex broader along anterior margin than long in middle line (2·5 : 1), anterior margin transverse; frons in anterior view with basal margin weakly angulately concave, with median area of disc longer than broad (2 : 1), lateral margins moderately diverging to below level of antennae.

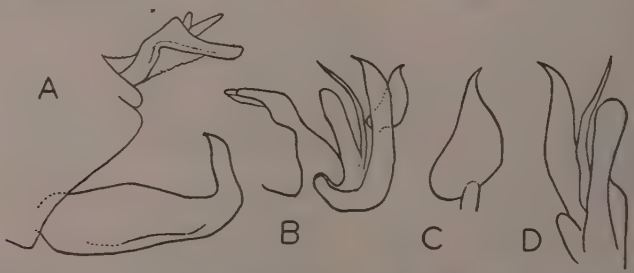

FIG. 65.—*Atylana volumna* sp. n.: A, anal segment, pygofer and left genital style; B, aedeagus, left side; C, one of paired processes at apex of ventral margin of phallobase; D, processes of phallus, anterior view of left side only.

Stramineous ; a light sprinkling of spots sublaterally on frons, and sometimes a spot on lateral lobes of pronotum below eyes, fuscous-piceous. Tegmina stramineous, veins concolorous.

Anal segment of male and pygofer as figured. Aedeagus U-shaped, phallobase deeply cleft laterally, the free upper margins lobate as figured, the apex of the lateral margins not equalling level of middle of apical margin ; ventral surface produced distally in a pair of long upcurved processes, each bearing at its apex an obcordate lobe, acute distally, gradually and moderately produced cephalad at its base ; phallus with 3 pairs of processes, the outer pair stout, curved cephalad at base and rather abruptly narrowed to a point at apex, the second pair slender throughout, slightly bent mesad in distal third, the inner pair submembranous, in anterior view broadly rounded distally. Genital styles as figured.

Male : length, 5·6 mm. ; tegmen, 6·0 mm. *Female :* length, 8·0 mm. ; tegmen, 7·5 mm.

Austral Is. : Raivavae. Holotype and 7 ♂ and 9 ♀, Mt. Araua, south slope, 500–1000 feet, 14.viii.1934 on *Hernandia* (*E. C. Zimmerman*) ; Anatonu, 12.viii.1934 (*R. Fosberg*) ; Pic Rouge, 200–400 feet, 5.viii.1934 (*E. C. Zimmerman*) ; 400 feet, near Unurau, 3.viii.1934 (*E. C. Zimmerman*) ; near Ahuoivi, 5 feet, 9.viii.1934 (*D. Anderson*). Holotype from Mt. Araua.

This species is readily recognisable by its uniform light coloration : in some specimens the tegmina may be very pale green, but the oblique pallid hyaline band so commonly developed in *A. vesontio* is always absent.

Atylana sagmaria sp. n. (Fig. 66, A–H)

Vertex broader at anterior margin than long in middle line (2·6 : 1), anterior margin very feebly convex, almost transverse, frons in anterior view with basal margin shallowly excavate, median portion of disc longer than broad (2·1 : 1), lateral margins weakly diverging to below level of antennae.

Stramineous ; clypeus, a sprinkling of spots on frons at apex and on basal third, marbling on disc of vertex, pronotum and mesonotum, a suffusion on femora, abdomen dorsally, and genitalia, castaneous or fuscous. Tegmina subopaque, a broad arcuate band from

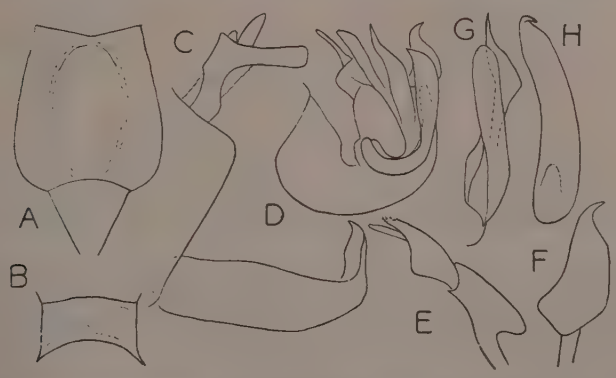

Fig. 66.—*Atylana sagmaria* sp. n. : A, frons and clypeus ; B, vertex ; C, anal segment, pygofer and left genital style ; D, aedeagus ; E, dorsolateral lobe of phallobase ; F, one of paired processes at apex of ventral margin of phallobase ; G, H, processes of phallus, detached, posterior view of right half only.

costal margin one-third from base to inner angle of clavus, and a suffusion over distal half, fuscous, an arcuate band across middle hyaline, with veins concolorous.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with an elongate lobe followed distally by a moderately narrowly triangular lobe; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a broadly subtriangular lobe distinctly produced cephalad at its base in a broadly rounded lobe, and produced at apex in a short curved spine; phallus comprising 3 pairs of elongate processes, the outer pair moderately stout, shallowly curved, acute at apex and strongly produced cephalad in a long narrow curved lobe; the second pair of processes rather abruptly expanded distad of middle, thence sinuately tapering to acuminate apex; the third pair submembranous, parallel-sided for most of length, deeply rounded at apex. Genital styles as figured.

Male: length, 3·6 mm.; tegmen, 3·7 mm. *Female:* length, 5·0 mm.; tegmen, 5·1 mm.

Austral Is.: Tubuai I. Holotype and 19 ♂ and 9 ♀; Mt. Taita, south-west ridge, 1200 feet, 20.viii.1934, on a species belonging to the Celastraceae (*E. C. Zimmerman*).

This species is distinguished by the shape of the aedeagal processes.

Atylana urania sp. n. (Fig. 67, A–G)

Vertex broader at anterior margin than long in middle line (3·0 : 1), anterior margin transverse; frons in anterior view with basal margin angulately excavate, median portion of disc longer than broad (1·8 : 1), lateral margins rather strongly diverging to below level of antennae.

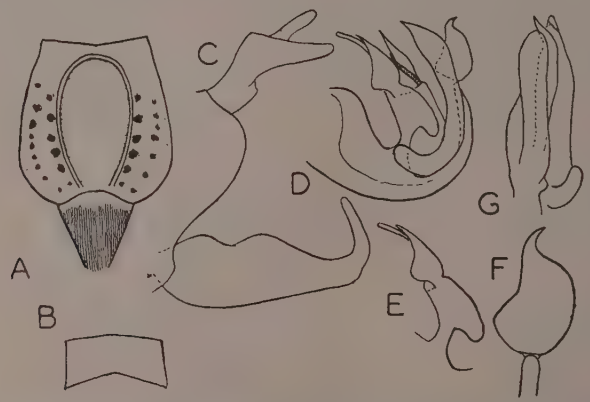

Fig. 67.—*Atylana urania* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer and left genital style; D, aedeagus, left side; E, dorsolateral lobe of phallobase; F, one of paired processes at apex of ventral margin of phallobase; G, processes of phallus, posterior view of right half only.

Stramineous; clypeus including sides, sublateral spots on frons, sparse flecks on lateral lobes of pronotum, femora and a suffusion on tibiae, and pygofer, fuscous-piceous. Tegmina subhyaline, stramineous, veins distinctly brown or fuscous, sometimes an arcuate hyaline area across middle of tegmen from costal margin to commissural margin.

Male genitalia as figured. Aedeagus with phallobase (periandrium) deeply excavate laterally near apex, dorsal surface bilobate on each side, and produced medially at apex in a moderately broad lobe curved dorsocephalad, ventral surface produced distally in a pair of rather narrow processes, each abruptly expanded into a reniform lobe which is acuminate at its apex ; phallus comprising 3 pairs of narrow processes, the outer pair stout, moderately curved, acute at apex and with a rather large lobe anteriorly at base, the second pair scarcely incurved above middle, acute apically, the third pair submembranous, parallel-sided, rounded at apex. Genital styles as figured.

Male : length, 3·0 mm. ; tegmen, 3·9 mm. *Female :* length, 4·0 mm. ; tegmen, 4·0 mm.

Austral Is. : Rurutu I. Holotype and 2 ♂ and 5 ♀, one mile north of Avera, 800 feet, 24.viii.1934 (*E. C. Zimmerman*) ; Mt. Manureva, south-east slope, 1100 feet, 30.viii.1934 (*E. C. Zimmerman*) ; south-west slope, 1000 feet, 25.viii.1934 (*D. Anderson*). Holotype from one mile north of Avera.

This species is distinguished by the shape of the aedeagal processes, by size and by coloration.

Atylana parmenides sp. n. (Fig. 68, A–E)

Vertex broader along anterior margin than long in middle line (nearly 2·5 : 1), anterior margin feebly convex ; frons in anterior view with basal margin very shallowly concave, with median area of disc longer than broad (2 : 1), lateral margins moderately diverging to below level of antennae.

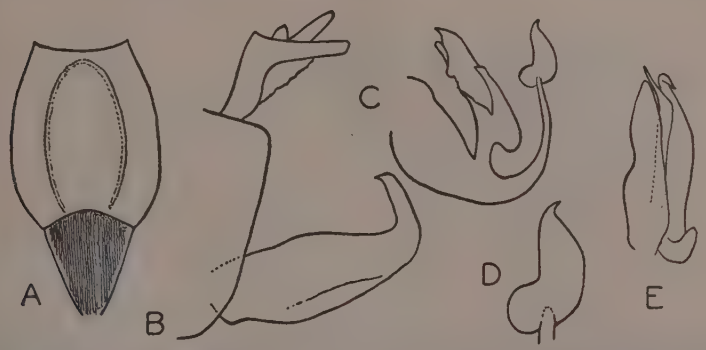

Fig. 68.—*Atylana parmenides* sp. n. : A, frons and clypeus ; B, anal segment, pygofer and left genital style ; C, aedeagus, left side ; D, one of paired processes at apex of ventral margin of phallobase ; E, processes of phallus, anterior view of right side only.

Testaceous ; frons stramineous, a little speckled with fuscous laterobasally, disc of clypeus, lateral lobes of pronotum below eyes and male genitalia, castaneous-piceous ; a few spots at lateral margin of pronotal lobes, postfemora and abdomen castaneous-fuscous. Tegmina testaceous, venation concolorous in corium, a little darker distally.

Anal segment of male and pygofer as figured. Aedeagus with phallobase deeply cleft laterally, the free upper margins lobate as figured, the apex of the lateral margins surpassing the middle of the apical margin ; ventral surface produced distally in a pair of long upcurved processes, each bearing at its apex a subreniform lobe, acute distally and abruptly produced cephalad basally ; phallus comprising 3 pairs of elongate processes, the outer pair stout,

curved cephalad at base and narrowing to a point at apex, the second pair narrow throughout, moderately subangulately bent mesodorsad about one-third from apex, the inner pair submembranous, in anterior view acutely subangulate distally. Genital styles as figured.

Male: length, 3·9 mm.; tegmen, 4·1 mm. *Female:* length, 4·6 mm.; tegmen, 5·5 mm.

Australs Is.; Rurutu I. Holotype and 17 ♂ and 22 ♀, one mile north of Avera, 800 feet, 24.viii.1934; Mt. Teape, 700 feet, south slope, 2.ix.1934; Mt. Manureva, 1100 feet, south-east slope, 30.viii.1934 (*All E. C. Zimmerman*); 1000 feet, south-west slope, 25.viii.1934 (*D. Anderson*). Holotype from one mile north of Avera.

This species resembles the sympatric *A. urania*, but differs in having the sides of the clypeus and the profemora and mesofemora and all tibiae stramineous, not fuscous, while the dark spot on the lateral lobes of the pronotum below the eyes is very distinct in this species but scarcely present in *A. urania*. The two species differ in characters of the male genitalia.

Atylana tormina sp. n. (Fig. 69, A–F)

Vertex broader at anterior margin than long in middle line (3 : 1), anterior margin feebly convex, frons in anterior view with basal margin very shallowly concave, median portion of disc longer than broad (1·8 : 1), lateral margins moderately diverging to below level of antennae.

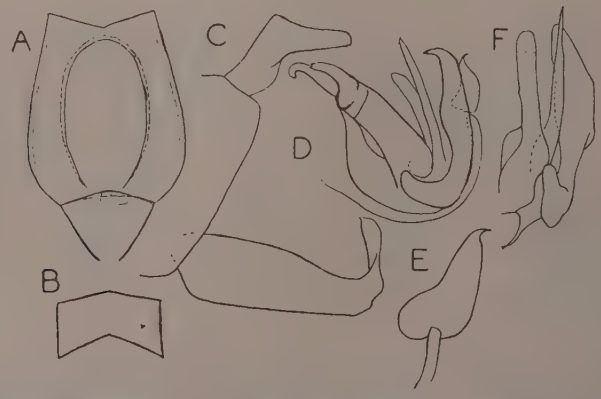

Fig. 69.—*Atylana tormina* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer, and left genital style; D, aedeagus, left side; E, one of paired processes at apex of ventral margin of phallobase; F, processes of phallus, anterior view of left half only.

Testaceous; frons near frontoclypeal suture, an ill-defined line down middle of frons, a few small round spots laterobasally, clypeus, a suffusion on lateral lobes of pronotum below eyes, abdomen dorsally and sometimes a suffusion on femora, fuscous. Tegmina hyaline, tinged yellowish-brown, venation castaneous or fuscous; sometimes a general dilute fuscous suffusion over tegmina, interrupted by a hyaline band, in which the veins are concolorous, from costal margin at middle to commissural margin near apex of clavus.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with an elongate lobe followed distally by a crescentic lobe recurved ventrad at its apex; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a subtriangular lobe, broad and moderately produced cephalad at base, and produced at apex in a short curved spinose process; phallus comprising 3 pairs of elongate processes, the outer pair relatively stout, shallowly curved, produced cephalad at base in a rather long narrow lobe, and curved cephalad at apex, acute at tip; the second pair rather slender, parallel-sided, feebly angulately bent just distad of middle; the third pair submembranous, feebly narrowed in middle portion, rounded at apex. Genital styles as figured.

Male: length, 4·6 mm.; tegmen, 4·6 mm. *Female:* length, 5·9 mm.; tegmen, 6·1 mm.

Rapa I.: Maitua. Holotype and 3 ♂ and 12 ♀, 400–800 feet, 12, 18.vii.1934, on *Piper* (*E. C. Zimmerman*).

This species is distinguished by the shape of the processes of the aedeagus.

Atylana torcular sp. n. (Fig. 70, A–E)

Vertex broader at anterior margin than long in middle line (2·3 : 1), anterior margin transverse or feebly angulately convex, frons in anterior view with basal margin distinctly concave, median portion of disc longer than broad (1·7 : 1), lateral margins rather strongly diverging to below level of antennae.

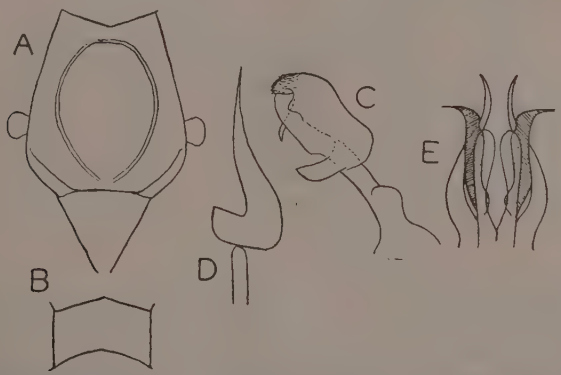

Fig. 70.—*Atylana torcular* sp. n.: A, frons and clypeus; B, vertex; C, left dorsolateral lobe of phallobase; D, one of paired processes at apex of ventral margin of phallobase; E, processes of phallus, posterior view.

Dark testaceous; mottling on median disc of frons, granules outside disc, clypeus except for a pair of spots laterobasally and one at apex, light sprinkling on vertex, pronotum and mesonotum, a broad bar across lateral fields of pronotum, and abdomen and genitalia, fuscous. Tegmina subopaque, tinged dilute yellow, a stripe along basal third of costal margin, basal half of clavus, an oblique dilute suffusion across corium, and anal angle of tegmen piceous; an oblique bar from *M* at nodal line to distal third of clavus, hyaline or pallid; veins concolorous.

Male genitalia as figured. Aedeagus with phallobase (periandrium) deeply excavate laterally near apex, dorsal surface bilobate on each side and produced medially at apex in a slender spinose process directed cephalad, ventral surface produced distally in a pair of

long narrow processes, each abruptly expanded into a narrow lobe produced cephalad at its base and tapering distally into a slender filament; phallus comprising 3 pairs of narrow processes, the outer pair rather slender, devoid of an accessory lobe at base, twisted at middle, acuminate apically, the second pair short, stout, S-shaped, arising near level of middle of third pair, the third pair submembranous, parallel-sided, weakly curved in basal half and angulately bent cephalad at middle.

Male: length, 5·0 mm.; tegmen, 4·8 mm. *Female:* length, 6·0 mm.; tegmen, 6·0 mm.

Society Is.; Tahiti I. Holotype and 9 ♂ and 5 ♀, Arue District, 1500–2000 feet, 9.iv.1934 (*E. C. Zimmerman*); Anaroii Plateau, 500 m., 12 kilometres from sea, 31.x.1928 (*A. M. Adamson*). Holotype from Arue District.

This species is distinguished by the shape of the male genitalia.

Atylana phorcynis sp. n. (Fig. 71, A–E)

Vertex broader at anterior margin than long in middle line (2 : 1), anterior margin transverse, frons in anterior view with basal margin distinctly concave, median portion of disc longer than broad (not quite 1·4 : 1), lateral margins rather strongly diverging to below level of antennae. Tegmina with venation regular, only the principal veins prominent.

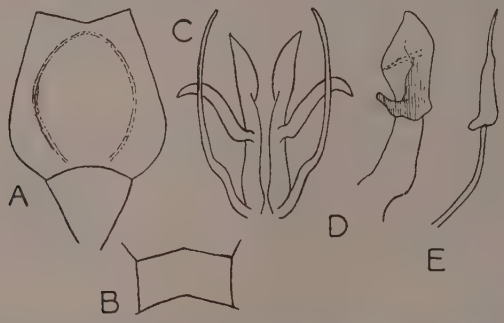

Fig. 71.—*Atylana phorcynis* sp. n.: A, frons and clypeus; B, vertex; C, processes of phallus, posterior view; D, left dorsolateral lobe of phallobase, with median spine shown in transparency; E, one of paired processes at apex of ventral margin of phallobase.

Stramineous or light testaceous; frons and clypeus and an oblique suffusion on lateral lobes of pronotum, castaneous; abdomen, excluding genitalia, infuscate. Tegmina subopaque, lightly tinged yellowish-brown, a broad stripe along costal margin in its basal half, a suffusion in basal half of clavus between claval suture and first claval vein, and a spot at anal angle, castaneous: sometimes a band from node to anal angle castaneous, crossed by an oblique ivory-white band from *M* at nodal line to commissural margin of tegmen in its distal half.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with a subtriangular lobe and a broad subquadrate lobe distad of it, the latter at its base produced cephalad in a distinct accessory lobe, a spinose process, directed cephalad, medially near apex; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded into a slender elongate-conical lobe strongly produced anteriorly at base, narrowly acuminate distally; phallus comprising

3 pairs of narrow processes, the outer pair long and slender, feebly angulately bent at middle, not produced cephalad in a lobe at base; the second pair rather short, twisted at base, and strongly curved cephalad at apex; the third pair submembranous, rather broad, with posterior margin sinuate and apex acute.

Male: length, 4·1 mm.; tegmen, 4·2 mm. *Female:* length, 5·2 mm.; tegmen, 5·4 mm.

Society Is.: Huahine I. Holotype and 16 ♂ and 9 ♀, Mt. Turi, north-west ridge, 1800–2100 feet, 1.x.1934.

This species is distinguished by the shape of the processes of the aedeagus, while most specimens of the type series are also readily recognised by the bold pattern of markings on the tegmina.

Atylana palanto sp. n. (Fig. 72, A–G).

Vertex broader at anterior margin than long in middle (2·5 : 1), anterior margin transverse, frons in anterior view with basal margin very shallowly angulately excavate, median portion of disc longer than broad (1·5 : 1) lateral margins moderately strongly diverging to below level of antennae. Tegminal venation distally reticulate.

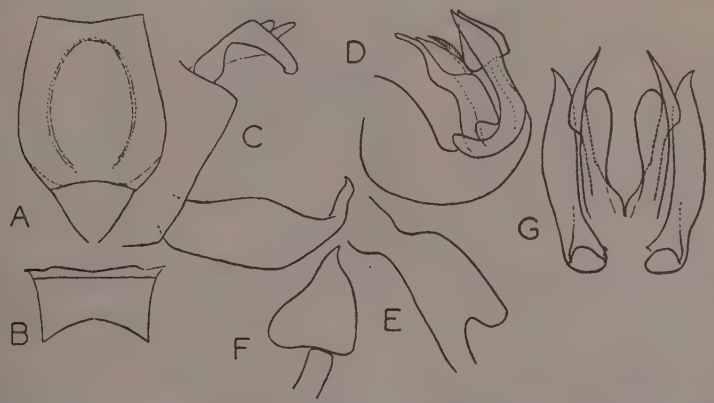

Fig. 72.—*Atylana palanto* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer and left genital style; D, aedeagus, left side; E, left dorsolateral lobe of phallobase; F, one of paired processes at apex of ventral margin of phallobase; G, processes of phallus, posterior view.

Stramineous; clypeus, disc of frons, at least in basal half, some spots laterad of disc, middle of vertex, a suffusion on lateral lobes of pronotum below eyes, spots on pronotum anteriorly, femora, protibiae and mesotibiae and abdomen, fuscous. Tegmina subopaque, pearly grey, venation fuscous, an arcuate transverse band across corium from costal margin just basad of middle to commissural margin at middle colourless, with veins pallid.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with an elongate lobe followed distally by a broad subtriangulate lobe, middle of dorsal margin convex in posterior view; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a broadly triangular lobe strongly produced cephalad in its basal half and acute at its apex; phallus comprising

3 pairs of elongate processes, the outer pair stout, moderately long, shallowly curved, acute at apex and strongly produced cephalad at base in a curved lobe; the second pair rather narrow, parallel-sided in basal two-thirds, a little expanded two-thirds from base then shallowly curved and tapering to apex; the third pair submembranous, a little narrowed in middle portion, very obliquely truncate at apex. Genital styles as figured.

Male: length, 4·1 mm.; tegmen, 4·0 mm. *Female:* length, 5·0 mm.; tegmen, 5·1 mm.

Society Is.: Tahaa I. Holotype and 2 ♂ and 3 ♀, Mt. Purauti, east ridge, 900 feet, south-east, 1200 feet, 10, 11.x.1934, on *Metrosideros* (*E. C. Zimmerman*).

This species is distinguished by the shape of the aedeagal processes.

Atylana melissa sp. n. (Fig. 73, A–G)

Vertex broader at anterior margin than long in middle line (3·1 : 1), anterior margin shallowly convex; frons in anterior view with basal margin shallowly concave, median portion of disc longer than broad (1·5 : 1), lateral margins rather strongly diverging to below level of antennae.

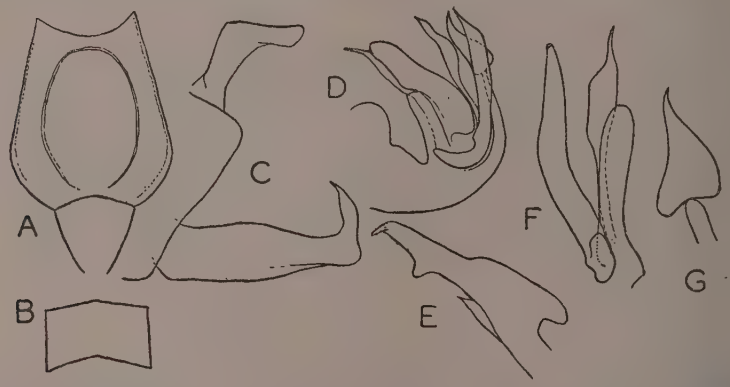

Fig. 73.—*Atylana melissa* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer, and left genital style; D, aedeagus; E, left dorsolateral lobe of phallobase; F, processes of phallus, posterior view of left side only; G, one of paired processes at apex of ventral margin of phallobase.

Testaceous; mottling on median disc of frons, granules outside disc, clypeus, a sprinkling on vertex, pronotum and mesonotum, a broad bar across lateral fields of pronotum below eyes, abdomen and genitalia, fuscous. Tegmina subopaque, tinged dilute sordid yellow, venation light yellowish-brown.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface narrowly bilobate on each side, and produced medially at apex in a short recurved lip, ventral surface produced distally in a pair of long narrow processes, each abruptly expanded into a rather broadly triangular process, acute at apex and feebly produced cephalad at base; phallus comprising 3 pairs of narrow processes, the outer pair moderately stout, slightly angulately bent at middle, acute apically and produced cephalad at base in a prominent accessory lobe, the second pair rather long, dilated in distal half

and abruptly tapering to a slender spinose process distally, the third pair submembranous, with lateral margins concave, apical margin rounded. Genital styles as figured.

Male: length, 4·0 mm.; tegmen, 4·0 mm. *Female:* length, 5·0 mm.; tegmen, 5·0 mm.

Society Is.: Moorea I. Holotype and 1 ♂ and 4 ♀, Mt. Teaharua, 1500–2000 feet, 25.ix.1934 (*E. C. Zimmerman*).

This species is distinguished by the shape of the aedeagal processes.

Atylana phoebe sp. n. (Fig. 74, A–C)

Vertex broader at anterior margin than long in middle line (2·7 : 1), anterior margin shallowly convex, frons in anterior view with basal margin shallowly concave, median portion of disc longer than broad (1·6 : 1), lateral margins moderately strongly diverging to below level of antennae. Tegmina with venation irregular, forming a reticulum.

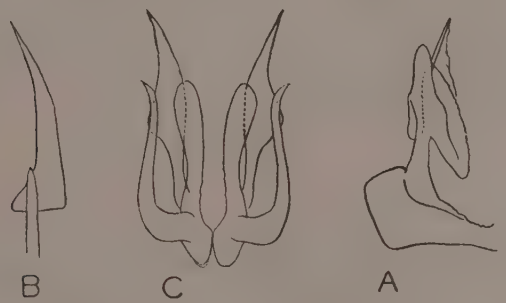

Fig. 74.—*Atylana phoebe* sp. n.: A, right dorsolateral lobe of phallobase and median spine of apical margin; B, one of paired processes at apex of ventral margin of phallobase; C, processes of phallus, posterior view.

Stramineous; a suffusion on disc of frons, and granules laterad of disc, clypeus, a few spots on lateral lobes of pronotum and a suffusion directly below eyes, a suffusion on vertex, pronotum except on hind margin, mesonotum, all femora, protibiae and mesotibiae in basal half, and abdomen, fuscous. Tegmina subopaque, pearly grey; venation reddish-brown, sometimes an oblique suffusion mesad from costal margin in basal half of tegmen, with hyaline areas, in which the veins are concolorous, on each side of it.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with a short ovate lobe and a long oblique lobe, and produced at apex in a short subacute lobe, ventral surfaces produced distally in a pair of long, narrow processes, each abruptly expanded into a slender elongate-conical lobe, little produced anteriorly at base, narrowly acuminate distally; phallus comprising 3 pairs of narrow processes, the outer pair moderately stout at base, shallowly curved and evenly tapering distad to acuminate apex, no accessory lobe developed at base; the second pair rather long, dilated in distal half, sinuately tapering to a moderately stout spinose process distally; the third pair submembranous, with lateral margins parallel or weakly concave, rounded at apex.

Male: length, 5·0 mm.; tegmen, 4·9 mm. *Female:* length, 4·7 mm.; tegmen, 5·0 mm.

Society Is.: Huahine I. Holotype and 1 ♂ and 2 ♀, Mt. Turi, north-west ridge, 1800–2100 feet, 1.x.1934; Mt. west of Mt. Turi, 1500 feet, 30.xi.1934 (*All E. C. Zimmerman*). Holotype from Mt. Turi.

This species is distinguished by the shape of the aedeagal processes.

Atylana astydamia sp. n. (Fig. 75, A–F)

Vertex broader at anterior margin than long in middle line (2·4 : 1), anterior margin transverse; frons in anterior view with basal margin very feebly concave, median portion of disc longer than broad (2 : 1), lateral margins only feebly diverging to below level of antennae.

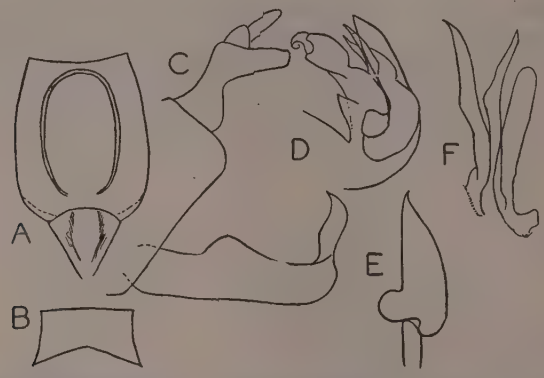

Fig. 75.—*Atylana astydamia* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer and left genital style; D, aedeagus, left side; E, one of paired processes at apex of ventral margin of phallobase; F, processes of phallus, posterior view of right half only.

Stramineous; disc of frons sometimes lightly mottled with reddish-brown, and pustules laterad of median disc sometimes reddish-brown. Tegmina subhyaline, stramineous venation dilute reddish-brown, a short oblique mark at middle, ivory, sometimes present as a reniform area diffusely bordered with brown.

Male genitalia as figured. Aedeagus with phallobase (periandrium) deeply excavate laterally near apex, dorsal surface bilobate on each side, and produced medially at apex in a moderately broad lobe distally coiled on itself, ventral surface produced distally in a pair of rather narrow processes, each abruptly expanded into a subconical lobe which is acuminate at apex and produced cephalad at base in a short rounded lobe; phallus comprising 3 pairs of narrow processes, the outer pair stout, moderately curved, acute at apex and with a small lobe anteriorly at base, the second pair angulately bent dorsomesad just distad of middle, acute apically, the third pair submembranous, almost parallel-sided, rounded at apex, a shallow longitudinal ridge down posterior surface. Genital styles as figured.

Male: length, 4·0 mm.; tegmen, 4·0 mm. *Female:* length, 4·8 mm.; tegmen, 4·8 mm.

Mangareva Is.: Mangareva I. Holotype ♂ and 2 ♀, Mt. Mokoto, south side, 1000 feet on *Sophora* (*E. C. Zimmerman, D. Anderson*).

This species is distinguished by the shape of the male genitalia.

Atylana parmula sp. n. (Fig. 76, A–F)

Vertex broader at anterior margin than long in middle line (male 2·4 : 1, female 2·6 : 1), anterior margin very feebly convex, almost transverse, frons in anterior view with basal margin very shallowly angulately excavate, median portion of disc longer than broad (male 2 : 1, female 1·7 : 1), lateral margins moderately diverging to below level of antennae. Tegminal venation distally reticulate.

Stramineous ; clypeus and abdomen fuscous, sometimes a sprinkling on base of frons and profemora and mesofemora, fuscous. Tegmina subhyaline, veins mostly reddish-brown, an oblique band from *M* at middle of claval suture colourless.

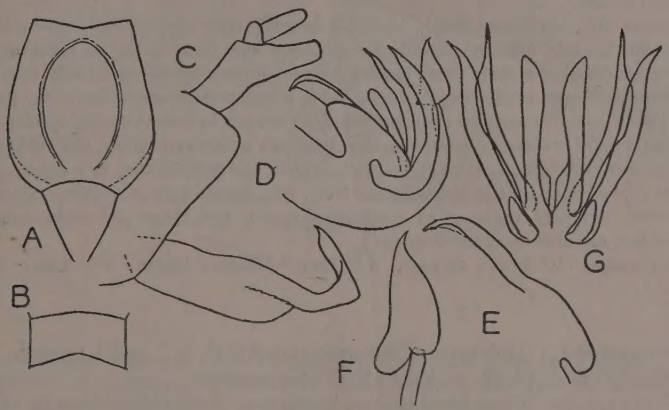

FIG. 76.—*Atylana parmula* sp. n.: A, frons and clypeus; B, vertex; C, anal segment, pygofer and left genital style; D, aedeagus, left side; E, left dorsolateral process of phallobase; F, one of paired processes at apex of ventral margin of phallobase; G, processes of phallus, anterior view.

Male genitalia as figured. Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with an elongate lobe followed distally by a narrow lobe curved cephalad at its apex, middle of dorsal margin narrow, sclerotised in a minute quadrate plate or lip, ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a rather large triangular lobe produced cephalad at its base in a rounded lobe and produced at apex in a short curved spine ; phallus comprising 3 pairs of elongate processes, the outer pair moderately long, shallowly sinuately curved, weakly curved at apex and terminating in a spine, strongly produced cephalad at base in a curved lobe ; the second pair gradually expanding to middle, where they are slightly curved mesad, then sinuately tapering to acuminate apex ; the third pair submembranous, parallel-sided, obliquely truncate at apex. Genital styles as figured.

Male : length, 3·9 mm. ; tegmen, 4·0 mm. *Female :* length, 5·2 mm. ; tegmen, 5·1 mm.

PITCAIRN I. : Holotype and 2 ♂, 2 ♀ and 2 nymphs, south side, 500 feet, 13, 14.vi.1934, beating *Glochidion* (*E. C. Zimmerman, R. Fosberg*).

This species is distinguished chiefly by the structure of the male genitalia, and may readily be recognised by the shape of the distal lateral lobes on the upper margin of the phallobase.

Atylana parmula subsp. **thalna** subsp. n.

Vertex broader at anterior margin than long in middle line (3 : 1), anterior margin very feebly convex, almost transverse, frons in anterior view with basal margin shallowly excavate, median portion of disc longer than broad (2 : 1), lateral margins moderately diverging to below level of antennae. Tegminal venation regular, only principal veins prominent.

Stramineous; a suffusion below eyes on lateral margin of pronotum and abdomen distally fuscous, sometimes clypeus, frons at distal margin, vertex and a suffusion on disc of pronotum fuscous. Tegmina subhyaline, a faint suffusion in basal half and an arcuate band distad of middle reddish-brown, sometimes present only on veins, an arcuate pallid area across middle.

Aedeagus with phallobase deeply excavate laterally near apex, dorsal surface laterally with an elongate lobe followed distally by a narrow lobe incurved at its apex, middle of dorsal margin bearing a short stout tooth; ventral surface produced distally in a pair of long narrow processes, each abruptly expanded in a rather large triangulate lobe, produced cephalad at its base in a rounded lobe and produced at apex in a short curved spine; phallus comprising 3 pairs of elongate processes, the outer pair moderately stout, shallowly curved, narrowing distad of middle, strongly curved at apex and terminating in a spine, strongly produced cephalad at base in a triangular lobe; the second pair gradually expanding to middle then sinuately tapering to acuminate apex; the third pair submembranous, parallel-sided, rounded-truncate at apex.

Male: length, 3·8 mm.; tegmen, 3·8 mm. *Female:* length, 4·9 mm.; tegmen, 5·0 mm.

Henderson I.: Holotype of subspecies and 6 ♂, 5 ♀ and 1 nymph, north-west side, 100 feet, 18–21.vi.1934 (*E. C. Zimmerman*).

This subspecies differs from the typical subspecies in slight details of structure, of which two of the most obvious are the pronounced curvature of the apical part of the outer pair of phallic processes (scarcely curved in *A. parmula parmula*) and the distinctly pointed tooth-like sclerite at the apex of the dorsal margin of the phallobase: the corresponding structure in the typical subspecies is ill-defined in shape. The two subspecies can be separated on superficial characters by the vertex in *A. parmula thalna* being more inclined in relation to the pronotum and mesonotum than in the typical subspecies, the apical margin of the tegmen less oblique, and the coloration showing much bolder contrast of light and dark areas.

Atylana spp.

Society Is. Raiatea: 1 ♀, Tamehani plateau, 1200–1600 feet, 5.x.1934 (*E. C. Zimmerman*).

Cook Is. Rarotonga: 4 ♀, 14.xi.1937 (*Wilder*).

XI. Family Flatidae Spinola

Genus *Colgar* Kirkaldy

Kirkaldy, 1900, *Entomologist* 23 : 242. Orthotype, *Cromna peracuta* Walker, 1858, *List Homopt. Ins. Brit. Mus., Suppl.* : 120.

Colgar rufostigmata Distant (Fig. 77, A–H)

Distant, 1910, *Ann. Mag. nat. Hist.* (8) 5 : 308.

Cook Is. Rarotonga : 2 ♂, 13 ♀ and 1 nymph, 10.xi.1922, 11.viii.1937. viii.1929, on banana (*G. P. Wilder*) ; Avarua, 30.iii.1929, on coffee (*G. P. Wilder*) ; Arorangi, 20.viii.1937, on citrus (*Director of Agriculture*), B.M. 1937–771.

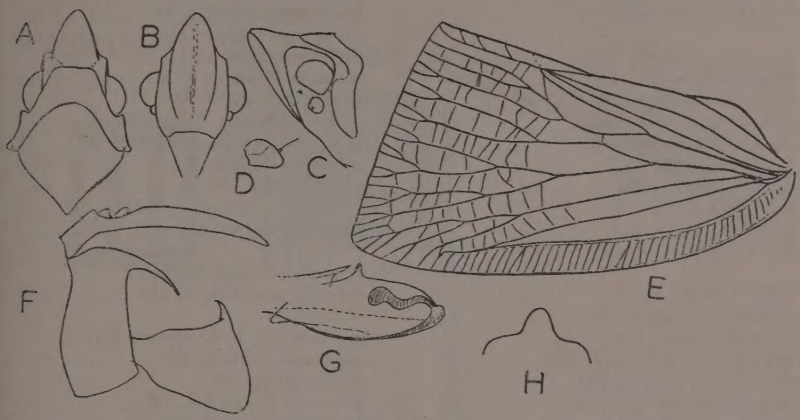

Fig. 77.—*Colgar rufostigmata* Dist. : A, head and thorax ; B, frons and clypeus ; C, head in profile ; D, antenna ; E, tegmen ; F, male genitalia, left side ; G, aedeagus, left side ; H, posterior margin of pregenital sternite of female.

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